WEST PAKISTAN DISTRICT GAZETTEER

MUZAFFARGARH DISTRICT

VOLUME "A"

Compiled

by

NASEER MUHAMMAD GARDEZI
P.C.S.

KARACHI:
PRINTED AT THE WEST PAKISTAN GOVERNMENT PRESS
1968

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PREFACE

The present edition of the Gazetteer of Muzaffargarh District, is the third publication in the series prepared and extensively revised on the lines contained in Chapter 17 of Land Records Manual. The last edition of the Gazetteer was published in 1930 after the conclusion of the Third Revised Settlement in the year 1921-24. The duration of this 3rd period settlement was fixed for 40 years which has since expired and the Division of Settlement has become due. According to the provisions of para 836 of the Land Administration Manual, the revision of Gazetteer of this district should have been undertaken after the conclusion of the next settlement. But with the creation of Pakistan in August, 1947, the shape of things in nearly all walks of life has taken a complete turn and social, economic and administrative conditions have manifasted considerable changes in the whole country including this district. Moreover, the advent of various Irrigation Projects like Thal and Taunsa Barrage have brought about considerable developments and improvements in economy of the district. All these factors have therefore necessitated the revision of the Gazetteer and this district earlier then the conclusion of the next settlement.

In this edition attempt has been made to eliminate and suitably alter all controvertial and prejudicial material from the previous Gazetteers. Efforts have also been made to bring it as much up-to-date as possible and including the year 1963-64. The material embodied in the previous Gazetteers of the district, including the Assessment Reports of the various tahsils, Final Settlement Report (1929) with other Special Reports of the district together with the Census Report ofthe year 1961, have been freely used and reproduscd wherever necessary. The factual and satistical information contained in this volume is compiled from various official and other authoritative sources indicated in the text. Such statistics as point to the text have been included in this volume whereas statistical tables would be found in Volume 'B' of the Gazetteer which is being published separately.

NASEER MUHAMMAD GARDEZI,
P. C. S.,

Officer on Special Duty (Gazetteer),
Multan Division, Multan.

Dated 28th November 1964.

PREFACE

The present edition of the Gazetteer of [illegible] District, [illegible] has been prepared under the [illegible] for the revision contained in Chapter 17 of Land Records Manual. The [illegible] edition of the Gazetteer was published in [illegible] after the conclusion of the Third Regular Settlement during the year 1921-24. The revision of the 3rd edition of Gazetteer [illegible] for 30 years [illegible] was not undertaken until [illegible] revision or Settlement [illegible] thus. "According to [illegible] para 538 of the Land Administration Manual, the revision of Gazetteer of the district should have been undertaken after the conclusion of the next settlement. But after the creation of Pakistan in August, 1947, the shape of things in almost all walks of life has taken a tremendous turn and social, economic and administrative conditions have undergone considerable changes in the whole country including this district. Moreover, the inception of various Irrigation Projects like [illegible] have brought about considerable development and improvements in economy of the district. All these factors have therefore necessitated the revision of the Gazetteer, at an earlier date than the conclusion of the next settlement.

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NASEER MUHAMMAD CARIMEH,
P.C.S.

Officer on Special Duty (Gazetteer),
[illegible], November 1964. Multan Division, Multan.

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DISTRICT GAZETTEER [illegible]

[illegible]

[illegible] of [illegible] in [illegible] Hazara [illegible] District [illegible] [illegible]

[illegible] Provision.

[illegible] and 71°, [illegible] between Indus, and [illegible] lies in South of [illegible] the North [illegible] Jhang [illegible] [illegible] District, on [illegible] and Dera [illegible] Bahawalpur [illegible]

[illegible] Leiah, Kot Adu, [illegible] which was originally [illegible] District, [illegible] Leiah was [illegible] Commissionership. The [illegible] Leiah District [illegible] in the year 1850. Previously [illegible] Kot Adu [illegible] shifted to Sanawan town [illegible] South from [illegible] changed to Sanawan. In [illegible] moved back to Kot Adu [illegible] again the former [illegible] underwent [illegible] and the [illegible] Leiah [illegible] present [illegible]

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MUZAFARGARH DISTRICT GAZETTER
VOLUME A (DESCRIPTIVE)
1963

Section A—Physical Aspect-Metreology.

The Muzaffargarh District (Multan Division) owes its name to the town where its headquarters are presently situated. Muzaffargarh literally means the fort of Muzaffar and is so-called because the old town lies inside the walls of a fort built by Nawab Muzaffar Khan of Multan in 1794. The place was previously known by a shop named Musan Hatti on the road leading from Multan to Dera Ghazi Khan. Prior to the shifting of the present headquarters of the district in the year 1859 from Khangarh to Muzaffrgarh, the district was named as Khangarh after the name of the town where the headquarters then existed. Physical Aspects-Metreology Name of District.

The district has an area of 5613 square miles (according to revenue records 5564 square miles) and the population of 989878 according to the census of 1961. Area and Population.

The district lies roughly between 29° and 31° N, 70° and 71°, 50°E in the shape of an inverted triangle in between Indus and Chenab Rivers, with its base towards North and apex in South at the confluence of the afore-named towo rivers. On the North the district extends to the boundaries of Mianwali and Jhang districts; on the East it touches Jhang, Multan and Lyallpur districts, on the West it forms rendezvous with Dera Ghazi Khan and Dera Ismail Khan districts and on the South it touches Bahawalpur District. Boundary

The District comprises of four Tehsils namely Leiah, Kot Adu, Muzaffargarh and Alipur. Leiah Tehsil, which was originally a part of Dera Ismail Khan and thereafter of Mianwali District, was annexed to this district in 1909. At one time Leiah was the headquarters of the District and even of Commissionership. The Kot Adu Tehsil was originally a part of old Leiah District but was added to Muzaffargarah District in the year 1859. Previously the headquarters of the Tehsil were at Kot Adu but in 1871 not only the headquarters of the Tehsil were shifted to Sanawan town lying at a distance of about 11 miles towards South from Kot Adu proper on the main road leading from Muzaffargarh to Leiah —but the name of the Tehsil was also changed to Sanawan. In 1919 the headquarters of the Tehsil were moved back to Kot Adu on account of excessive water-logging and once again the former names was adopted. The Muzaffargarh Tehsil also underwent jurisdictional changes. Formerly it was sub-divided into two Tehsil: the "Chenab" with headquarters at Khangarh and the "Indus" with headquarters at Kinjhar. The present Rangpur Sub-Tehsil of Muzaffargarh was then a separate Tehsil and was attached to Shorkot (Jhang District). The present boundaries Tehsils.

of Muzaffargarh Tehsil were determined in the year 1887 when the Rangpur Tehsil was detached from Jhang District and joined to Muzaffargarh District. The Alipur Tehsil retained the present jurisdictional extension and always formed a part of Muzaffargarh District. Previously its headquarters were at Sitapur which were later on shifted to Alipur proper.

Physical Aspects.

The general gradient of the District is from North to South. Following the general topography of the District, it can be divided into four parts:—

(a) the armpit or Kachi which does not require canal irrigation;
(b) the Pacca or Sub-riverain tract, which formerly received inundation supplies but is now being irrigated by Rangpur and Taunsa Canal Systems;
(c) the lesser Thal or Thal Nehri which had masonry wells for irrigation purposes, but is presently commanded by Thal Canal System of Jinnah Barrage; and
(d) the greater Thal or Thal Kalan, which does not receive any irrigation and is barren waste land (See map I).

The Armpit or "Kachi"

As the name denotes the armpit tract runs along the rivers in between Thal or Canal irrigated area on the one hand and the river Indus or Chenab on the other. This tract has been and is subjected to sumergence or emergence according to the rise and fall of river waters. According to the intensity of the flood this tract can be further sub divided into two Zones. The first is a narrow strip along both the rivers or solitary islets where summer floods are so high that no Kharif crop can be grown and no Rabi crop can mature without well irrigation. Out flanking this tract, there is a second Zone, where the floods are less violent, the Kharif crop can be grown on comparatively high lands and the Rabi through sown on flood waters needs irrigation unless winter rain-fall is unusually good. The irrigation is generally conducted through persian-wheels set up on creeks and ponds or if the site is safe from the river flood, through wells. In this Zone especially on the Indus in Leiah Tehsil the irrigation is practised extensively by taping river water in creeks. Water is stored in lands and then used for irrigation. Land is generally good as it consists of alluvial deposits.

Sub-Riverain tract or Pacca area

This area extends from Indus to Chenab in a triangular shape with its base on the sand dunes of Thal in the North and apex on the head of the joint rivers near Panjnad in the South. The tract resembles a terrace falling from North to South. The difference between the riverain tract and sub-riverain tract is almost imperceptible. Floods are less intense and rare in the

latter tract. It also receives canal supplies. Soil generally differs in fertility from East to West. Near Chenab, in the Eastern part of the District silt deposits predominate whereas in the rest of the District soil is primarliy composed of sand or low quality silt of river Indus. Crops, nevertheless, can be grown in favourable conditions throughout this tract. Nature has been particularly niggardly in this tract. River when in spate destroys all signs of human habitation. Thal encroaches when the sand dunes expand in summer and the ground water rises. The problem of water-logging has been discussed under a separate heading. The general ground water level is 0 to 5 which has thrown most of the area out of cultivation, and has reduced the drainage capacity of the soil. Evaporation has given rise to the excessive surface accumulation of the salt. Salts are commonly found intensively throughout the District. Despite this the area contains date-palm orchards, and mango gardens, par-excellence.

Thal Nehri. This area consists of practically the old revenue assessment circle of Thal Jandi in Leiah Tehsil and Thal Jal in Kot Adu Tehsil with a part of Thal Kalan and Thal Roday in Tehsil Leiah and Kot Adu respectively. The Southern apex of this area is in the middle of Muzaffargarh Tehsil which is the last step of the rising terrace of the sub riverain tract and Northern extremity marks the boundary line of Muzaffargarh and Mianwali Districts. Roughly it lies between Mianwali-Muzaffargarh road in the East and Aligarh-Kundian railways in the West. The soil is composed of sandy loan and contains 15% of clay, 21% silt and 61% fine sand with 3% coarse sand approximately. The centire area (where-ever canal irrigation has been extended) lands itself admirably to sugarcane cultivation.

The Thal "Kalan" The rest of the Muzaffargarh District consists of high sand dunes. "Thal" has been derived from Sanskrit word meaning "Waste Land". It consists of high sand dunes having 55% or more coarse sand, 22% fine sand, 23% or less silt or clay. The soil lacks in vegitative contents or Nitrogenous matter. Certain parts have salt deposits just 3 feet below surface. The precipitation is very little but sometimes enough to give a Barrani Rabi crop. This area supports large flocks of sheeps, goats and herds of camels. The general undulating and sandy character of the Thal is in places broken by hard ground called 'Patti land" on which Rabi is grown either when the rain fall is good or when artificial irrigation through wells is possible. One of these belts with an average width of 2 miles extends from Nurpur in Sargodha District to Muzaffargarh and in this belt the best old villages are found. Irrigation in this belt is through masonry wells, though they are primarily meant for providing drinking water to cattle.

Comparative assessment. The soil varies greatly in fertility throughout the district. The disparity can be attributed to the varying degree of admixture

of silt and sand in the river deposits as well as wind action which has led to the accumulation of superficial sand dunes over hard ground. The area near the rivers is more fertile, as compared to the area in the interior of the District.

Water table varies from 0 to 5 and 5 to 10 feet in sub-riverain tract as well as in parts of Thal irrigated tract and from 40 to 60 feet in Greater Thal or Kalan. In some tracts of Thal Nehri water-logging has thrown considerable area out of cultivation. Canal irrigation has disturbed (particularly in sandy soils when the losses through seapage are excessive) the equilibrium between ground water re-charge and discharge. The deep percolation on account of superficial sand from water applied to the lands for irrigation adds to normal ground water re-charge. As a result of this, water table in these areas is very high. The conditions are still worst at places where natural surface water run-away has been stopped by road, canals, channel, embankments and railways. The rise in sub-soil water-table and high percentage of evaporation due to aridity has steadily given rise to surface accumulation of salts. It is not easy to predict the volume of incidence of water logging. But the worse affected parts of this District are in Muzaffargarh and Kot Adu Tehsils. Certain areas in Thal Jandi particularly near Hiran Distributary in Leiah Tehsil have also been affected badly.

The underground Water legend

Geologically the entire District is under-lain with water acquifer. According to investigations carried by WASID excluding the greater Thal which is not under irrigation and probably never will be due to the paucity of canal water and where there will be no ground water recharge to the acquifer the storage capacity of under-ground water is estimated to 3.5 million acre feet on the assumption of a fresh water saturated thickness of 450 feet and an effective porosity of 25%. The water in the acquifer can be classed as fit for irrigation, unfit for irrigation and partially fit for irrigation. The latter category can, however, be used successfully if mixed with canal water. According to preliminary estimates (see map II) the area of 1,80,000 acres contains severe saline water under ground and area of 4 50,000 acres contains saline patches under-ground. Investigations have also revealed that there is a wasting Zone in which quality of ground water exceeds 1750 P.P.M. which can be utilized for irrigation purposes mixed with canal water.

Keeping in view the underground storage, about one million acre feet of water can be drawn annually for irrigation purposes. But the local requirements above the surface (namely need for eliminating water-logging and extending irrigation alone) cannot be determining factor in case of underground water development. Number of other factors namely containments of salt

in the sub soil water at a given degree, preservation of certain mineral ratio, and of leaching salt above the surface act as damper on speedy utilization of underground water.

River Indus.

Indus flows along the western boundary of the district throughout its length. The slope of the bank in this District is easy. The current is strong and rapid. The river changes its course frequently. In cold weather it is 2 miles wide. In hot weather it overflows its banks to such an extent that its width cannot be estimated correctly. Its depth varies from 12 feet in the winter to about 24 feet or more in summer. It has tendency to form islands and shoals which render navigation dangerous. The islands are mostly overgrown with a dense grass jungle; this grass is Kan (Saccharum spontaneum) and not Kana or Munj (Saccharum Sara). The inland portion of the District contains creeks which were once beds of the Indus. In receding westward it has left various side-channels which are easy and safe means of irrigation. The inundation canals of the district have their head in the side-channels.

The Chenab.

The Chenab flows along the eastern boundary of the District for about 125 miles. The bank of the Chenab is in parts high and steep. The depth of the stream varies from 15 feet in winter to 30 feet in summer. Chenab is comparatively narrow. It has placid course, studded here and there by sand and alluvial islets. Navigation in the river is difficult but not so dangerous as it is in Indus.

Dhands or Back-water.

The side-channels of the rivers, the inlets from the rivers and the lakes are called Dhands. Some of them afford suitable avenues of putting up persian-wheels. They also abound in fish. Ducks and snips are also found. The Dhands vary in size and depth according as the floods fill them. The canal protective works, have however, changed the character of the "Dhands". Near the protective works where fisheries have been bred, by Canal Department and Fisheries Department, they are filled by Canal Department. However, a large number of Dhands have lost their identity because of Taunsa Barrage and Panjnad Head Works. The following are the oldest and most prominent:—

(1) Ghazanfargarh Dhand in the village Ghazanfargarh, 15 miles south of Muazaffargarh;

(2) The Garange Dhand, South of the Alipur Tehsil extends from village Bhambri in North to Kotli Lal in South. It is about 5 miles long in the cold weather and is winding with a depth of 12 feet and width of about 30 yards on an average. The Snubnosed crocodiles and large tortoise are occasionally seen. It is an interesting execursion spot near Khanwah Rest House.

Canals.

The weir controlled system owes its origin to the intensive cultivation of land. When the sailaba irrigation could not meet the growing requirements the inundation canals were excavated to carry water to the interior of the District which otherwise could not be irrigated by flood-waters. But like sailaba irrigation, inundation supplies could not exploit minimum river flows. They were subject to the mood of the river and vagaries of nature. Scanty rainfall further limited the development of sailaba or inundation irrigation. Thus came on the scene the weir controlled canal system both perennial and non-perennial.

Presently three main weir controlled canal system, namely Thal Canal System, from Jinnah Barrage, Muzaffargarh Canal System from Taunsa Barrage and Rangpur Canal System from Trimu Barrage irrigate the district. The Thal Canal System is perennial while Muzaffargarh and Rangpur Canals are non-perennial. Besides, inundation canals are still found in operation in those parts of the district where the water from weir controlled canal system has not been supplied. The details of the above three weir control canal system are given in Chapter II, Section-A.

Embankment.

The embankment follows the river banks. The great Sanwan embankment was the main protective Bund which used to bear the force of ever striking currents of Indus river on the Western side of the District. This embankment lay 5 miles East of the main stream of river Indus; with its base on the railway line at the border of Kot Adu and Leiah Tahsils. But it has now been extended upto Jaman Shah Railway Station towadrs North. Its Southern extremity is near Jatoi in Alipur Tehsil. This bund has been further supplemented by right margional bund of Taunsa Barrage (upstream) and by Magason, Ranuja and Ghuttu bunds (down stream). West of this embankment, the country is exposed to floods either from river Indus or from its tributary creeks of which the Ghuttu is the largest and was once the source of Alipur Canal. Chenab's west bank has been guarded by another embankment with its base on the sand hills of the Thal about 8 miles North of Muzaffargarh town to a place 6 miles north of Alipur Muzaffargarh border. This has been extended upto Rangpur in the north and upto the left margional bund of Panjnad Head Works in the south. There are number of other supplementing bunds namely Langar Sarai Bund, Chak Rohri Bund and another bund near Khangarh. Two more bunds near Bara and Khanwah in Alipur Tehsil are also found. These bunds are being maintained by the Canal Department.

Geology.

There is nothing of geological interests in the District except that the parts known as Thal Nehri and Thal Kalan were once bed of the River Indus sand dunes, appear to be the result of wind

action and the latter consequence of river deposits over centuries There is an undeniable evidence that river Indus must have flowed over Thal and the rest of the District for a considerable period at one time and produced hard ground having considerable percentage of clay. Village Basira on Multan-Dera Ghazi Khan road, equidistant from Chenab and Indus was once described in some sale deeds as Bait Basira although it lies in the heart of Thal now.

It grows throughout the District where-ever canal irrigation has been extended or water is available for plantation. There are many avenues on the Mianwali-Muzaffargarh Road from Chowk Fatehpur to Chowk Pattal Munda where there are extremely good plantation of Shisham trees. Another leading avenue is from Muzaffaragrh to Chenab Bridge. **Flora trees. Tahli.**

Kikkar, locally called Kikkar (Acacia arabica) is loss common. It suffers much from frost but, where it escapes this danger it grows into very fine tree. Wood is used for agricultural implements. Young branches of the kikkar, bar and jand are cut as fodder for goats, and are called "langi" and "lung". **Kikkar.**

The Sharinh or siris (Acaciaspeciosa) was not considered a suitable tree for growth. It has now been successfully introduced. Its main advantage lies in its transplantation as a grown uptree, by which method the forest deparment saves 3 to 5 years of its original growth. **Sharinh.**

The jand, or Kanda (Prosopis spicigera) is the commonest tree in the district. Rakhs are full of it and where it escapes being lopped, it attains a fair size generally it is stunted and deformed. In Thal, where it is carefully preserved on wells and regularly pruned, it grows up to a height of about 30 feet. The pods are called shangar or sangri, and are used for food and are eaten either boiled with ghi or mixed with curds and called araita. They are also dried and preserved. Wood is used for agricultural implements and fuel. **Jand.**

Ber (Zizyphus jujuba) is a common tree and attains a large size. Near, Rohilanwali, are some very fine trees. The dried fruit is called Bhugrian. **The Ber.**

The Ukanh (Tamarix orientalis) is called tulha while young. It thrives everywhere and is propagated with case. The Manna of this and of the Lai is called Shakio. The galls, main, are used for dying and tanning. **The Ukanh**

The lai (Tamarix dioica), called 'Pilchhi' and 'Jhau' grows spontaneously wherever river water reaches. The river banks particularly those of the Indus, are lined with thickets of it. Lai is used instead of masonry, for lining wells and for making baskets. It is usually a mere bush, but in the Thal, for example west and north of Mahmood Kot, it grows to a large size. **The Lai.**

The Jal. The Jal (Salvador oleoids) like "Jand" also grows spontaneously in the Thal and in waste land. The wood is of little value. The fruit is called 'Pilhu' (plural pilhan) and is largely eaten. The dried fruit is called kokir. The leaves and twigs furnish fodder for goats and camels.

The Jhit. The Jhit, a variety of Jal (Salvadora indica) is common in the south of the district, especially in the inundated parts. Its only use is miswak, locally called musag.

The Karinh. The Karinh or Karita (Capparis aphylla) is common in waste land. It makes rafters and fuel of an inferior sort. The flower is boiled and eaten as a vegetable. The name of the fruit is Delha. It is made into pickle.

The Ubhan. The ubhan or bahan (Populus euphartica) grows spontaneously on the banks of Indus, lower Chenab and Sutlej after its junction with the Chenab. Where it escapes looping, it attains a large size. Its young branches provide fodder for goats. frames vair, wheels wells and rafters. The wood is light and consequently is used for making beds doors frames, bair, wheels of wells and rafters.

The Phog. Phog (Calligonum polygnoides) grows in the Thal, where it is very abundant. It is a small leafless shrub. Wood makes excellent charcoal. Twigs provide fodder for goats and camels. The fruit ripens in May. It is called phogli, and is both cooked as a vegetable and made into bread.

The Ak. Ak (Calotropis procera) should not perhaps be classed as a tree, but specimens with 10 feet height and wooded stems nearly a foot in girth are also found. It is usually a shrub. Goats and sheep eat the leaves Akri (Nithane coagulans) a smaller plant of much the same appearance is also found. Goats eat the young shoots.

The other trees. The trees before mentioned are those commonly seen. The following are more rare in the district but as they are common Pakistani trees, they require no description: (1) Pipal (Picus religiosa); (2) Bohir (Ficus indica); (3) (Amaltas) here called girdnali (Cathartocarpus fistula); (4) Lasura (Cordia myxa); (5) Rohira (Tecoma undulate); (6) Gondi (Cordia rothii); (7) Jaman, here called Jammu (Sizygium Jambolanum); (8) Chhickra (Butea frondosa); (9) Phuali (Acacia modest); (10) Kabali kikkar (Acacia supressiformis); and (11) Sohanjna (Moringa pterygosperma).

Fruit trees. The fruit trees are mangoes, pomegranates, apples, (suf), pears, grapes, quinces, oranges, limes and figs. The mangoes are superior and are largely produced and exported. Mango gardens are common all over the district but those round about the towns of Muzaffargarh, Khangarh and Sitpur are very productive. There is a special Mango specil near Butipur popularly known as صوبے دی ٹنگ " which ripens late in September and October. It is belived that it fetches considerable income because of its being a late variety. Fruit growers association is very active in the District and the devlopment of fruit gardens is attributed to the interest shown by the association in preserving the fruit and in marketting. Vegetable, also grows well, especially around Leiah and Kot Adu towns

Date palms (Khajji) form a staple food, and the poor people practically subsist on dates for about 4 months. The product of this tree furnishes a considerable revenue to Government. Khajji grows in every part of the District and flourishes in the poorest soil. The chief variety of dates are Basra dates and indigenous or (local Khajji). This is stored and exported after it has been cured The curing is an interesting process. After the dates are collected from the tree, they are exposed to the sun either in an enclosure made of date palm leaves or grass, so that sun's rays free from dust can reach dates. This process continues for 4 days and thereafter they are cured. Date Palms.

Date crop genreally suffers from a disease called Bara (fever). Continuous rains and worms (susari) also destory the crop. Diseases of dates.

Dates constitute staple food of the poor. They eat it at any time of day and night. The poorer section of the population almost subsists on dates altogether during the season. In the Southern part of the District dates are pounded mixed with flour and are made into bread. Dates are sometimes mixed with Tobacco instead of Gur and are smoked. Food value of dates.

Besides fish, an account of which will be given hereafter the products of the Dhands are as follows: Water lilies (Nelumbium Speciosum). The local name is Pabbin. The flowers are used for medicine, and considered cooling. The seed capsules hold seeds embedded in cellular pith of the size and taste of a filbert. While young, the seeds are eaten raw or cooked as a vegetable. The flesh of the seed is called gar; it is white, covered with a green seed-coat. The seeds are considered a cure for vomiting, and mixed with sugar are considered good for diseases of children. The roots of the Pabbin spread in the mud at the bottom of the Dhand. They are long and white and divided into lengths by knots. They are dug up and eaten, either roasted with salt or boiled as a vegetable. Pabbin roots are called Bhe, a corruption of the Persian Bekh, or root. Singharas (Tarapa bicornis) are sometimes found in the Dhands. The nuts are dried and when required for use the kernels are separated from the husks by pounding and made into flour. Kundr, bulrush (Typha augusti-folia), is found in most Dhands, especially in the south of the district. The flags are called Phara, and are used for making matting called Parchha and Phuri and string for beds. A charpai of bulrush string is higly esteemed for its softness and coolness. The down of the ripe ear is collected and boiled in a cloth like a plum-pudding. It has a sweetish insipid taste. The down is called bur, and down pudding is buri. At the lower part of the ear a fibrous substance, something like cotton is produced which is called kahu. This is used as tinder and is much sought after by the frontier Biloches. Waterplants of Dhands.

The most common and esteemed fodder plant Talla or drabh grows everywhere except in Kallar and sandy soil, especially in Fodder plants.

riverain and sub-riverain tract. It is an excellent grass for fodder and it is regarded a sign of good soil. Chemhar in sandy soils takes the place of Talla as a foder grass. It is surprising how fast it grows in the Thal after rain. It is excellent fodder. Drabh is a strong coarse grass with long roots. It grows in all kinds of soil, even in the poorest, and remains green all the year round. It is difficult to eradicate. Madhana is a rain grass of excellent quality while it lasts. It is also called because its flower resembles a madhani or churn-dasher. Trir, or makhnala, is another rain grass and is much liked by horses. Kal, or Kabba, is also a rain grass and is excellent fodder while green, but it soon grows hard and uneatable. Lehu is a thistle and grows abundantly among the rabi crops. It is grazed and also cut and given to cows and bullocks to eat. Wisah is a spreading fleshly-leaved plant which grows in the rains. It is eaten by all animals except horses and asses. This is the plant elsewhere called itsit. Sinjhi is a plant like clover, which bears a yellow flower. It grows wild among the rabi crops and in parts is cultivated. There is a species with white flowers which is said to give colic to cattle. Jaudal or phitkanak, is a plant that grows among wheat and barley and until seed time it cannot be distinguished from them. The reed, however, is small and tasteless; while green it is good fodder. Dodhak is a small milky plant which provides fodder for sheep and goats only. The buta (Saccharum sara) as often wrongly called sarkana and munjkana, which are really names of parts of the plant. This is almost as useful as the date palm. The wavy leaves at the base of the plant are called sar, and besides being good fodder, are used for mats and thatch. The tall stem is called Kanan and the upper part of the stem tili. Kanan is used for making baskets, chairs, walls of huts, screens, roofs, rafters and fences. The tili is used for making baskets and besom. The sheath of the tili is munj, and is used for making rope. The flowers are called bullu and are given to cows and buffaloes to enrich their milk and are hence called makhan sawai, or "butter one and a quarter more". Kan (Saccharum Spontaneum) is very abundant in the low ground near the rivers which are annually inundated and in the islands. It furnishes first-rate fodder for buffaloes, and pens are made from the stem. Khawi is a grass which has a faint lemon smell; it is found in the Thal. Dila is a bush which grows in marshy grounds. It is inferior fodder. Murak is another marsh plant; it is soft and tender and much esteemed as fodder. Jusag is a plant which is used as fodder and also as a pot-herb. Lana is used only as fodder for camels. Sajji is not made from it here. Camel-thorn, here called jawanh or jawasa is common. The following plants, which are mere weeds are also used as fodder, Kharpal, Munjhar, Savri, bhukan or bukan, battun or bathum, pit papra, sain, phit-sain, palwahan, patrali, phuli, say-ahchar, Ludri, budia, sit, trangar, kamalibuti, pochki, naun and hemcha. In Chapter II-A there is a further reference to the fodder plants of the Thal.

Planeted fodder grasses

Due to uncontrolled and excessive grazing Thal lands consist of depleted Ranges where only undesirable abnonious weed type grasses like Munj Launa, Khavi and Pistan dominated good Frage grasses like Dhaman and Kerera (Cenchrus and Elinurus) which once used to dominate have totally disappeared. Such, depleted Ranges can be restored either by natural or by artifical reseeding. Natural reseeding is the cheapest and most effective method of range restoration. Where enough plants of good forage species still survive natural vegetation can be ensured. But in ranges like Thal where forage species have been completely exterminated due to over use, there is no other alternative but to resort to artificial reseeding to hasten the process of range recovery.

Method of reseeding.

Summer seeding of good native grasses (warm season grasses *i.e.* (Elionursus Hirsutus and Cenchrus Ciliaris) has proved very sucessful in Thal desert area. Here reseedings have been made after the first summer rains. Areas have been ploughed or harrowed to eliminate weeds and to prepare adequate seed beds. Seeds have been broad-cast and convered by a brush drag. Compaction is obtained through the effect of heavy beating of rains.

Plants other than fodder plants.

The following are the most common plants other than fodder plants. (The line between fodder and other plants is not yet very clear for camels and goats will eat anything). Khip (Orthanthera biminiea) is a leafless shrub. It is not put to any use except for covering rafters. It is very inflamable. Bhakhra, or gokhrau (Tribules terrestris), grows generally in sandy soils; it has a caltrop-shaped seed vessel. Puth kanda, literally 'inverted thorn (Achyranthes aspera), is common in Sanawan. The leaves are dried, made into powder and used as cosmetic Dhamanh (Fagonia cretica) is found in the Thal during summer. Camels eat it. Karvilun (Capparis horrida) the fruit ripens in March and April, and is made into pickle; leaves are used for sore throat. Ratkan grows in summer on the banks of the canals, it is used in diseases of horses. Kaurtuman. or the colocynth gourd, grows in Thal and in sandy ground during June and July. It is a favourite medicine for horses. Kanderi—a plant with thorns on the stem, leaf stalks, and leaves, with a fruit like potato apples, Phesak lani (Suoeda fruiticosa) is eaten by camels. Hurmal (Peganum harmala) grows everywhere. The seeds ripen in August. They are generally used as anti-inflictant. The seed is burnt and the smoke is in-haled by a patient suffering from measles and small pox. Locally it is recognized as panacea for hundered diseases particularly for curing sciatica pains. Lut is a parasitical creeper of a light-green colour that grows on the upper branches of trees. Bhuen phor literally the "earth-splitter" (Philipoer calatropidis) this curious plant is very common. In February and March its stem, about an inch thick, brusts through the ground,

sending fissures alround, and grows from 6 inches to a foot high, and is covered with handsome vase-like flowers. The whole plant is very juicy. It is given to goats to increase their milk, and is applied to boils. Situn (Boncerosia edulis) is a kind of wild asparagus. It springs up after summer rains at the roots of the jal, jand, karita and phog trees. It is eaten with salt, and also cooked as a vegetable. Chibhar is a small gourd that grows wild among Kharif crops. The fruit is eaten raw or cooked with meat. Jati musag literally the "Jat's", tooth brush is a small plant with few flowers that grows on land subject to in undation. Bhangra is of two kinds, one kind has blue flowers, from which collyrius is made; the other kind grows on the bank of water-courses, and, when reduced to ashes, is used for curing galls in bullocks. Uthpera, literally "Camels foot-prints," is a plant with broad leaves that grows in Thal. The leaves are dried, pounded and boiled, and used as a medecine. Fatokar grows in the hot weather, its leaves are used as a hair restorer, and also for boils. "Bhukal," literally "buds of the earth" is like an onion and comes up with rabi crops. It bears a small black seed which ripens just before wheat harvest. In times of scarcity the seeds are ground and made into black bread of repulsive appearance, which is very indigestible, but is eaten nevertheless. Bui and barari are universal in the sandy parts of the waste. They are mainly used for fuel. Khumhi, mushrooms, are common in the Thal after Summer rain. Although susally eaten fresh, they are also dried, and preserved Pad bahera is a name for fungi of all sorts. Other less known plants are:—

Corakhpan, dandeli, tandula, mariri, reshan, van veri, sijh ubhara, or sunrise, salara, kauri valh, or bitter creeper, piple, Kalaich buti, nilbuti, or wild indigo, gidar war, or wild cotton, angair, kanjum, be phalli, damath harmal, batu and pippa.

The Scenic Beauty. River, with its ever-changing course, semi arid climatic conditions active wind action and scarcity of water have left their footprints on the flora as wild as physical features of the district. A vast sea of undulating sand dunes or ever enlerging of the sepansis of salt-petre ladden fields. The monotony of expanding sand dunes is however broken here and there by road side shishman plantations in canal irrigated areas interesting spots of scenic beauty are provided by date palm orchards. The meandering river with its creeks, and Suleman range in the background makes a picturesque scenery. The construction of Taunsa Barrage with beautiful lawns and buildings nearly is another attraction spot for hitch-hikers and sightseers.

The Wild Animals. Wolves, locally called 'Nahar' are found througout the district, and wild bear is extremely common, especially on the

banks of the rivers. They are called 'Mirhon' and wild sows 'Bhudin'. The only dear in the district are 'Parha' or hog-deer, and the ravine deer, here called Haran or 'Chinkara' Jackals, and foxes are common. Hare are fairly numerous especially in those parts where irrigation has been extended and the area is safe from river floods. In Thal Nahri, they are very common. Otters are found in the south of the district Hedgehogs, here called Jah, are common. Mongoose, called 'Maulum' are very common. Pig and hog-deer are occasionally taken by nets of 'munj' rope supported on movable poles with side strings fastened to bushes. The net is called 'wanvar'. Death due to the attack of a wild beasts are rare. Never-the-less the harm done to crops is appreciable, particularly from wild boars.

Birds

The following birds are found in the district:—

Dove	.. The male is gera, the female tuttin.
Sparrow	.. Chiri.
Hoopoe	.. Hudhud.
Woodpecker	.. Drakhan pakhi, literally "carpenter-bird", the hoopoe is oftern called by this name.
Peewit	.. Tatiri.
Warty-headed ibis	.. Kanwni.
Tern	.. Karachi.
Sandpiper	.. Tatuha.
Pelican	.. Pain. There is a lager kind called sholal pain.
Indian snake-bird	.. Siri.
Crow	.. Kan.
Lark	.. Chundur.
Kite	.. Hill or chil.
Vulture	.. Gijh.
Pharach's chicken	.. Sunda.
Dlue Jay	.. Chan.
Magpie	.. Match.
Straited bush babbler	.. Herha.
Bengal babbler	.. Dad herha.
Parrot	.. Tota.
Batcher-bird or Shrike	.. Malala, Both the grey-backed and red-basked.
Kingcrow	.. Kal-karachchhi..
Swallow	.. Ababil.
Kingfisher	.. Toba literally 'Diver'
Egret and paddybird	.. Bagla and bag.
Goot	.. Ari.
Blue coot	.. Lulang Water-rail is Khanauti.
Indian Criole	.. Hariawal.
Amadavat	.. Lali, and sharak lali. The last name literally means 'lali' weighing a chatak.

Spoonbill	..	Doi bag, literally (spoon-neron).
Heron	..	Sanh.
Raven	..	Dodar kan and ruhela kan.
Owl, owlet and goat sucker.		Ghugh, ullum, chibri and huk.

The other raptores are:—

Kurl	..	A large hawk found near water. It lives on fish and wild fowl.
Jurra, male	..	Baz, female.
Bashin, male	..	Basha, female.
Laghir	..	Shahin,
Tumtri	..	Charag (male chargela).
Chuhemar	..	Bahri.

Which are all hawks of different kinds and cormorant, khambu. Bittern is her called nardur. The grebs is tuhaya.

The birds for which the English equivalent is doubtful are:—

Karwanak, also called saukin (known as a stone-plover but really a lapwing). Lives on the banks of rivers and in sandy deserts.

Nil bulai	..	Lives on the banks of rivers and near water; a kind of water-rail apparently.
Dhing	..	Very large crane-like birds which congregate in flocks during the cold season.
Badhing	..	These are common in the province and are great pests to the gardener.
Phiddi	..	A small back wagtail with spots.
Dhuri	..	A small ash-colured bird with a longtail.
Chhapaki	..	An ash-coloured bird the size of a dove.
Tilyar or vahye	..	Tilyaris probably aster. ling and the vahve, though diffe.eing in colour, is like a starling in its flight Both are great enmies of farmers and are very distructive to dates. Destroys locusts.
Trakla	..	This is apparently the green pin-tailed fly catcher. It is named trakla from a fancied resemblance to the spindle, trakla, of a spinning wheel.

The game birds usually shot are:—

The florican (Boubara macqueeni) or talue are commonly met with. (2) Sand grouse (bhatittar or khatakkar), both the imperial and common small species; (3) Partridge, tittar, black (Mushki) and grey (gora). The female black partridge is called missi. Very fair sport may be obtained in the lai and grass Jungle round cultivation (4) Quails arrive in great numbers in March and Septemeber, but soon disappear; (5) The common, the jack and the painted snipes, chah; (6) The wild goose, mangh (7) Mallard, nirgi (8) The spotted billed duck, hanjal (9) Gadwall duck, Buar (10) Shoveller duck Gena; (11) The marble-backed duck bhurru (12) the Brahminy duck, chakwa; (13) The common teal, karara (14) The sheldrake, or burrow duck, dachi; (15) The white-eyed duck, ruhari, and (16) The wistling teal.

The lesser bustard is now rare. The great bustard used to be seen, but now seldom, if ever, visits the Thal now. Kun and plover are common in the lowlands near the rivers. The plover

is called puliani, "the weaveress" from its gait. It makes a short rapid run, and then stops like a weaveress when preparing her thread. Pigeons are found all over the district. Quail and water-fowl are netted.

Game Department. The shooting of the birds has been regulated by the Games Department. Formerly in the year 1947 there was one Game Inspector with seven Game Watchers for the entire District. The strength of Game Watchers has been raised to twenty in the year 1962. The Department still needs further enforcement in order to preserve the birds from un-authorised and unscrupulous shooting.

Method of Shooting. The shooting, hunting, sharing, netting and hawking are supervised and controlled according to the provision of Wild Life Protection Ordinance, 1959 and the rules framed thereunder. Normally a period is prescribed in which shooting is allowed. This however, does not mean that there is no unauthorised shooting In fact there are more than the authorised hunters. Meeting, sharing, hawking is also allowed on licence.

Availability of Game. According to the note prepared by the Games Department are reproduced below, the following birds are available for shooting or otherwise in places mentioned against each.

S.No.	*Name of birds/animals.*	*Place of availability.*
1.	Ducks of various kind (period from late August to late March	Shahgarh in M. Garh Tehsil, Ghazanfargarh in M. G. Tehsil. Khajiwala M. G. Tehsil, Panjnad Head works in Alipur. Dhand Khiara in Alipur, Taunsa H. Works in Kot Adu Tehsil. Chorimwala along Muzaffargarh Canal Kot Adu Tehsil., Riverain areas in Leiah Tehsil,
2.	Sandgrous (Period from November to March).	Inayat Shah in Leiah, Pir Jaggi in Leiah Nawan Kot in Leiah RakhKhanpur(M. G. Tehsil), Kodiwal (M. G. Tehsil).
3.	Bustards: (period from early November upto last day of February).	Chaubara, in Leiah Tehsil Kot Sutan in Leiah Tehsil Leiah in the Leiah Tehsil, Daira D.P. anah in Kot Adu. Kot Adu in Kot Adu Tehsil Rangpur in Muzaffarg rh Tehsil.
4.	Bush and Common Quails. (Periord from Feb. to April and August to October).	Karor in Leiah Tehsil, Kot Adu in Kot Adu Tehsil, Kinjhar in M. Garh Tehsil.
5.	Starlings (period from June to last September).	All over the district.
6.	Partridges Black (period from 15th Feb: to 15th May & 15th June to end of October).	Along the riverian tracts of the Indus and the Chenab.

7. Partridges grey (period from as for partridges black).	Leiah, in Leiah Tehsil, Kot Sultan in Leiah Tehsil, Kot Adu in Kot Adu Tehsil, D.D. Panah in Kot Adu Tehsil, Kinjhar in M. Garh Tehsil M. Garh in M. Garh Tehsil, Jatoi in Alipur Tehsil, Seetpur in Alipur Tehsil.
8. Hog-deer ..	Along the riverian or on the bank of the Indus i.e. Police stations, Kundai, Seetpur Jatoi, Kinjhar, Ghazighat Kot Adu D.D. Panah, Kot Sultan and Leiah.
9. Wild deer ..	A above.
10. Ravine-deer (Chinkara) ..	In the Thal areas between the Chenab and the Indus Riverian tracts, above in dry zones of Chaubara Shergarh, Chauk Azam, Munda Wandhar, Rakh Khanpur, Pir Jaggi, Dhori etc.
11. Hares ..	Almost all over the District.
12. Blue Rock pigeons all kinds ..	As in Col No. 11 (above)

Fishing

Fishing provides an industry for a fair number of people and food for many. The fishing tribes—Jhabels, Kihals and Mors—live almost entirely by it, and other people take to fishing for support. The gear used is:—

The drag-net called chheku jal or ghawa. It is made of several nets fastened together.

Nara.—This is a stationery net which is kept in a prependicular position by means of floats made of reeds.

The cast-net, satu jal:

The kur is a beehive-shaped frame of wood lined with a net. It is jammed to the bottom of shallow water, and secures what-ever fish are inside;

Khara is an eight-sided cage surrounded with netting;

Sangola, a spear like that carried by *Chaukidars,* This is used also for spearing tortoises; and

Tarki, a sort of raft.

Fish are also caught with the hook and line in deep water and in the rivers The rivers abound in fish, but few are caught in the main stream, except the "Khagga", a siluroid fish which takes bait readily. The ordinary Pakistani tackle is too weak and too small to be of much use in the large and rapid channels of the rivers. The fish-eating crocodiles (Cavialis gangeticus), here called sinsar are found in both rivers and are common in the Indus.

The fishes of the District can be divided into two categories namely (i) Carp (vegetarains) (ii) Cat Fish (meat-caters).

The first group includes those fish which prefer water plants, decayed leaves and plantonic food. They do not mind eating earthworm insect larvac etc. Big Mahseer, however, eats small fishes. Fish of this group are Rohu 'Thaila', 'Norakha' and 'Kalbans', etc. The second category includes voracious fish. They prefer to eat anything even their own kind and dead bodies. Chief fish of this group are 'Mullee' 'Khagga', 'Chainja', 'Saul' and 'Buchwa', etc. The chief difference between the two groups is that vegetarians have scale while 'meat-eaters' have none (except Daula, Saul etc) (ii) vegetarian have not teeth while 'meat-eaters' have, (iii) vegetarians have long and convoluted intestines while 'meat-eaters' have short, straight intestines Typical examples of the two groups may be found in 'Morakha' belonging to the former category and 'Mullee' to the later. The fish which generally abound in Dhand waters are Thaila or Rohu. A detailed list of the different fishes as per note of the Director of Fisheries dated 3rd January, 1963 found in the district are as under:—

(a) *Food Fish*.

FAMILY.	SCIENTIFIC NAME	LOCAL NAME.
Notop-teridge	*Notopterus Chitala (Hamin)*	Pari, But.
	Notopterus notopterus „	Pari, But.
Cyprinidae.	*Labeo rohita (Hamilton)*	Rohu, Dambra Dukkar.
	Labeo calbasu (Hamilton)	Kalbasu. Dahee.
	Cattle catla (Hamilton)	Thaila Thal.
	Chirrhin mrigala (Hamilton)	Mori Morakh
	Chirrhina reba (Hamilton)	Sohnin.
Siluridae	*Wallago attu (black and Schn)*	
Bagridae	*Rita/rita (Hamilton)*	Khagga, Tirkand
	Mystus(Osteobagrusaor)Ham.	Singhara Singo.
	Mystus(Mustus) cavasins Ham.	Tingra, Khar.
	Mystus (Mustus) tengara (Ham)	Tingara, Malhir.
Ophiecephalidae	*Channa marulius (Ham.)*	Saul. Daula.
	Channa punctatus (Bloeh)	Daula, Caree.

(b) LARVIYORUS AND OTHER LESS IMPORTANT FOOD FISH.

Claupeidae	*Cadusia Chapra (Ham.)*	Chhuchi, Palli.
Cyprinidse	*Barbaus (Funtius) tic to (Ham.)*	Parahi.
	Osteobrame cotio (Ham.)	Dara, Guldah.
Siluridae	*Ompok bimaculatus (bloch)*	Chechan.
Schilbeidae	*Eutropilchthys vacha (Ham.)*	Bachwa, Jhalli.
	Clupisona garus (Ham.)	Dhungam.
	Pseudeu tropius atherinoides	(Bloch) Ahi.

Recently Government have introduced fish culture on an extensive scale in the district. It is believed that about 10 fishing ponds both in private as well as in Government sector have been established and stocked with fish. The chief varieties being introduced in fish culture are Rohu 'Morakha' and 'Thaila',

Fishing Sports

West Pakistan Fisheries Act, 1961 has placed following restrictions on fishing for sports as well as for commercial purposes:—

(1) No fishing except on rod and line is allowed during closed season, *i.e.,* from 1st June to 31st August.

(2) Catching of fish like 'Labeo' 'Rohita' (Rohu), Chirrhina 'Mrigala' (Mori), Catla catla, 'Thaila', 'Calbasu' etc below 12 inches in length is prohibited.

(3) Destruction of fish by poisoning and dynamiting is disallowed.

(4) Erection of fixed engines is banned

(5) Erection of Dams, Wiers, Traps for killing fish and netting is prohibited.

(6) Diversion of water for the purpose of killing fish with small nets is prohibited.

Marketting

Following table gives the income derived from the auction of fish in the years from 1957 to 1962:—

	1957.	1957-58.	1959-60.	1960-61.	1961-62
Income.	16,845	50,475	57.512	1,20,040	1,25,000

The markets in the district are Muzaffargarh, D.D. Panah, Kot Adu, Alipur and Khangarh. The fish is also sold in villages. No preservation plant exists in the district and hence local fish are mostly consumed in the district. The prices vary between Rs. 40/- to 60/- per maund.

Fish Enemies

Enemies of fish at the farms as well as in the river are varied and numerous. Damage caused is immense. Common among them are crocodile, otter (Lutra vulgaris) white heron (Egretta garzetta linn), grey heron (Ardea Cinera linn) Cormorant, King fisher, Halcyon syminensis, Mullee fish (Wallago attu), Saul (Ophicephalus marulius) and beetle larvac (Cybister bengalensis).

No special method for protection of fishes in the district are practised but in Dhands which abound in fishes namely 'Rohu', Morakha and Thaila or where fish culture has been introduced they are protected by fixing iron bars and iron netting on the inlets and outlets.

Fish are liable to diseases. Some of the reasons are congestion, ill-balanced environments, low vitality and lack of oxygen. The diseases from which the fish suffer are fungus (saprolegnia) Fin-not, Fish-lice, Thyroid/tumour or carcinoma and dropsy. No organised treatment is provided by the Fisheries Department to treat the fish normally found in Dhands, etc. However, where-ever fish culture has been introduced some attempts have also been made to eradicate these diseases. Fish diseases

Reptiles of the district are as follows:— Reptiles

(a) River Tortoises.

(1) The snub-nosed crocodile (Crocodilus parustris) here called baghun;

(2) The fish-eating crocodile (Gavialis ganeticus) here called sinsar. The tribes before mentioned eat the flesh of those;

(3) The goh;

(4) The Guhira. This is said to be the young of the goh, but it seems to be distinct species;

(5) The sahnan, a lizard which frequents sandy grounds;

(6) Kirari, the common house lizard;

(7) Korh Kirari, literally the leprous lizard. It is apparently a kind of chameleon;

(8) Khan is a black-and white lizard with a bluish tinge. There are all sorts of fables about Khans. It is really perfectly harmless; and

(9) Galei is larger than the house lizard, and is supposed to be harmless.

Frogs, the male called dedar and the female dia. abound everywhere.

Snakes are common. The following are the chief kinds:— Snakes

There are several varieties of cobras. The names depend on the colours. The local name of 12 varieties are given below: It should be remembered that 'bishyar', 'Mushki' and 'Kala' all mean black; 'chuhra' also means black because sweepers (chuhra) are black-complexioned: (1) Bishyar, (2) Mushki, (3) Kala, (4) Mushki, Kala, (5) Chuhra; (6) Chuhra Mushki, (7) Mushki utara or par-

tridge black; (8) Mushki tilyar, starling black, (9) Moti bind, literally pearl-drops', (10) Mushki, phanyar, black-hooded, from Sanskrit phan, a snake's hood; (11) Peti bagga, white bellied and (12) Gal Kala, black-throated. The bish has no hood, and is therefore, one of the elapidac. All other varieties appear to have hoods. The bishyar is believed to be the female of the mushki tilyar. Other poisonous kinds are sangchur, literally 'throttler', also called guraha. This is the Ophiophagus elaps. The most common poisonous snake is the Korkind or kurandi, also called Jalebi. Its name denotes double coil in which it lies. It is also called khapra and khar peti from the hardness of its skin. This is the Echis carinata (saw-scaled viper). It has a habit of lying on roads after sunset, and being brownish in colour, is difficult to see. It has only recently been included in the list of poisonous snakes in the district for the destruction of which rewards are paid. About 60 to 70 persons die every year of snake-bite. The majority are bitten by this snake. The charhoa, literally 'washerman' is a harmless snake. Other snakes are padam, vais, domuhan, Tir mar or ghore dangan, unda, or jatala; this is said to be a hairy snake. Salung vasak, also called "sah pivna," the breath-drinker.

Insects.

Common insects are: (1) Makri or locust. They occasionally do great damage; (2) Tiddi, a grasshopper most destructive to young crops; (3) Danwar spider; (4) Vathunhan, (5) Dembhun, wasp, honest (6) Labana, an earth cricket with formidable jaws; that bites severely; it is called labana, (7) Kankoil, centipede, (8) Popat, butterfly; and (9) Bees, here called makkhi, produce good honey (Makkhi) in April and October.

Climate.

The Muzaffargarh District falls within the dry type of climatic zone of West Pakistan. Normally the climate should be the same as of the zone in which it falls. However, the microclimate of this District stands quite distinct from the climate of the zone and has undergone a marked transformation in the recent past because of the effect of local land scape, character of vegetation, lakes, ponds and human activity such as cultivation of soil and establishment of cities and factories.

All these factors have produced a marked influence on micro-climate. Thal is no longer as dry as it used to be 20 years ago. Wherever Canal irrigation has been extended the hedges and shelter-belts have greatly reduced the effectivenss of hot and turbulent winds. The precipitation has also gone up. The moisture content due to excessive radiation is so much in the atmosphere that certain nights are completely close and intolerable. Other parts of the district flooded from rivers or irrigated by inundation, perennial or non-perennial canals are less dry than Thal Kalan. The incidence of Malaria is more marked in the months of August and September, due to abnormal moisture conditions in the

atmosphere. The period from April to July have intense heat and wind storms but the nights are cool in the dry parts of the district. Rigor of the climate have been reduced considerably by such factors as irrigation procedure, planted orchards around houses, combination of shelter-belts and green-houses, Despite all these factors the summer months especially in those parts of the district which are covered by Thal are still intolerable and discomforting.

The winter season is quite cold and marked with severe frost which occurs in cycles. The frost during the year 1962-63 was so severe that it completely spoiled the sugarcane crop. Frost also caused injury to cotton and mangoes. Hot weather is oppressive on the whole but winter is very bracing. Due to extreme dust in summer eye diseases are common. Venereal diseases also prevail to a great extent.

Temperature. The temperature in the hottest days rises to 11500 to 1200. Due to forest plantations and canal irrigation sun radiation is less than what it used to be when canal irrigation had not been extended. No systematic record is, however, kept in the district.

Rain-fall. Rainfall of the district is most uncertain and varying in amount and still more in distribution from year to year. It generally decreases from north to south and follows the rivers. In the months of March and April hail storms are frequent. Following table shows average rainfall in each Tehsil for the year 1954-55 to 1962 :—

Years.	*Leiah.*	*Kot Adu.*	*Muzaffargarh.*	*Alipur.*
1952-53	..	..	..	..
1953-54	..	5.90″	4.93″	2.96″
1954-55	6.06″	8.86″	6.63″	2.91″
1955-56	17.03″	13.12″	11.58″	6.58″
1956-57	13.29″	8.76″	5.09″	2.48″
1957-58	8.39″	3.74″	6.79″	1.86″
1958-59	6,15″	14.99″	14.68″	6.66″
1959-60	21.98″	5.36″	5.11″	3.85″
1960-61	6.37″	11.29″	7.23″	3.77″
1961-62	8.33″	6.46″	7.44″	5.36″
1962-63	4.61″	..	..	..

In the year 1955-56 Leiah Tehsil received 17.03″ of rain whereas Kot Adu and Muzaffargarh Tehsils received 13.12 and 11.58″ of rain each respectively. Maximum rain was recorded in Leiah Tehsil in 1959-60 *i.e.* 21.98″ of rainfall. Higher rainfall in Leiah Tehsil is partially attributed to the forest plantation by the TDA. Muzaffargarh district is outside the sphere of Mansoons. Rainfall is neither equally distributed over different parts of the district nor is regular. Tables in volume B contain rainfall figures for each year.

Earthquakes Cyclones and Flood.

Earthquakes have been recorded. They have never caused any considerable destruction in the district. There have been no cyclones. Dust storms are common during the months of May and June in Thal area. They sometimes begin earlier and last longer.

River Indus, being higher than that of Chenab and slope of land being generally from west to east, has a tendency to spread into the District. It has made several inroads into the interior even after the construction of Sanawan embankment in 1874. But in some years like 1889 and 1894 when the gauge at Attack read as 51 feet. Sanawan Embankment effectively with stood the flow and no damage was done outside the riverain tract.

In 1924 Sanawan bund was breached and much damage was done. In 1929 again the district suffered from Indus floods. The year 1929 was particularly bad because of heavy rains in the D.G. Khan District. The gauge touched peak figures (66.5 feet) towards the fag end of August and caused several breaches in the Railway lines between Kot Sultan and Leiah. Town of Muzaffargarh was protected from Indus by dorsal ridge of the Thal which runs past it down to Kinjhar in the shape of a wedge. It has, however, suffered from the destructive floods in Chenab (Ravi, Chenab and Jhelum combined) which broke through the barriers of the embankment, in 1893, 1924, 1950, 1957, 1959, and 1960. It is said that abnormal flood in 1924 washed away great deal of salts down from the south of the Jhang District and the Rangpur side of the Muzaffargarh Tehsil and spoiled the best sugarcane and cotton growing land of the region. In 1929 there was flood in Chenab as well as in Indus but the Chenab protective bunds did not give way. The extent of damage caused by Chenab flood during the year 1950 was abnormal. It washed away 161 villages and demolished 403 houses and destroyed 20,000 mds. of Bhoosa and 2,000 mds of food grains. It also damaged standing crops over an area of 15,000 acres. Similarly in 1957, 231 villages including Rangpur town were completely washed away. About 6,132 houses were demolished and 62,787 mds of bhoosa, 3,330 mds. of food grain were destroyed. The damage to standing crops was also considerable.

Due to frequency of floods Government of West Pakistan has prepared a flood scheme for the entire province. The District of Muzaffargarh has also prepared and enforced a minature flood scheme in the district. The entire district has been divided into various sectors and put under the charge of Revenue Officers. These flood schemes are generally concerned with rescue work have nothing to do with warding of the calamity of the flood.

CHAPTER—1—SECTION B.
HISTORY.

Greeks.

This district apparently has not played any significant part in the history of the province. Of the early histery little is known. Greek soldiers, headed by Craterus (according to Arriana) in about 327 B. C. skirted some parts on the right bank of river Jhelum when Alexandar the Great himself sailed down through the river. But testimony is unreliable.

Arabs.

We find a mysterious silence in recorded events till the advent of Arabs in 710 when they conquerred Multan. The Arabs held Multan and Sind under their sway upto 750 A.D. Then after the District came under the occupation of a tribe named Sumra whose rudiments are still found in the district. In 1351 A.D. the Sumras were expelled by the Sumras another tribe of the same stock, the descendants of whom are to be traced among the Unnars of Alipur Tehsil. They bore the title of Jam which to-date is being used as a title of respect by Muslims of Sindhian origin. Some of the famous Rajput tribes namely Sial, Gurahas, Bhatti and Chhajras settled in this district during the ascendency of Summas.

Four Governments

The district as a whole had no complete history until it was united under Diwan Sawan Mal Governor of Multan under the Sikhs. Prior to it, this district was divided and ruled by four Governors namely Nawab Muhammad Khan Saddozai of Mankera popularly known as Nawab of Thal who ruled Sanawan Tehsil. Nawab Ghazi Khan, Nawab Noor Muhammad Gujar and Kalhora Governor of Dera Ghazi Khan who held under their tutelage the tract lying opposite to Dera Ghazi Khan and consisting of Taluka of Arian, Kinjar, Sari, Trand and Mahara; which passed into the possession of Nawab of Bahawal Khan after the Sikh conquest Nawab Muzaffar Khan of Multan who held the tracts of Rangpur, Muradabad, Muzaffargarh, Khangarh and Ghazanfargarh under his sway, and the Nawab of Bhawalpur who ruled the Taluka Kharan of Muzaffargarh Tehsil and the entire Alipur Tehsil.

Langah Dynasty.

The rise and fall of any dynasty at Multan always affected the fortunes of this district too. One of the most important event in the history of this district is the rise of Langah dynasty at Multan. It rule from 1445 to A.D. 1526. During the Langah rule the independent Kingdom of Sitpur was established by Nahars in what is now called the Alipur Tehsil. The rise of small semi independent principalities encouraged some of the tribes of sametic stock namely Balochis to emerge from Suleman mountain to which place they were obliged to retire alongwith the Arabs and to occupy the country on the left bank of river Indus. The

Balochis thereafter made their continuous advancement in the district and large number of settlements are now found throughout the district.

The following detailed account of the events leading to the establishment of Muzaffargarh district in the present form given in the previous Gazetteer is reproduced below:—

The First Government in Sitpur. The Nahars Bloches and Makhdums.

"The dynasty that established the Sitpur kingdom was the Nahar. In A.D. 1455 (A.H. 854), when Bahlol Khan Lodhi, who had been Governor of Multan, became King of Delhi, he granted the country lying between the Indus, which then joined the Chenab at Uch, and the Suleman range, south of a line drawn from Harand to Uch and north of Shikarpur in Sind, to his relation Islam Khan Lodhi. This tract comprised what is now the southern part of the Alipur Tehsil of the district, the southern part of Dera Ghazi Khan district and the north part of Sind. Islam Khan or his descendants took the title of Nahar. Islam Khan's grandsons, Kasim Khan, Salam Khan and Tahir Khan, quarrelled and divided the country among themselves. The southern part of the present Alipur Tehsil, the chief town of which was then Sitpur, fell to Tahir Khan. He established his rule there and died. There were 27 generations of the Nahar family. The last of the Nahars was Bakhshan Khan, who was *Jamadar* of chaprasis in the Alipur Tehsil and who enjoyed a small allowance from Government for looking after the family tombs. After him the incumbents of the office were widows. One of the Nahars built a fine tomb in his lifetime, which still exists. His name was Tahir Khan, named Sakhi or the liberal. Another, Ali Khan, founded Alipur. No other memorial of the Nahars exists.

"At the end of the fifteenth century the Biloches began to issue from the hills, and occupied the country on the left bank of the Indus, from Sitpur to Kot Karor in the Leiah Tehsil. In A.D. 1484 (A.H. 887) Haji Khan, a Mirrani Biloch, founded Dera Ghazi Khan and established a dynasty, the rulers of which alternately bore the titles of Haji Khan and Ghazi Khan. These chiefs expelled the Nahars from the south of the Dera Ghazi Khan district and pressed the Sitpur Nahars very hard. Treachery was at work at the very door of the Nahar. Sheikh Raju, Makhdum of Sitpur, who was a councellor of the Nahar, began to seize the country for himself. He did not entirely expel the Nahars, for when he in his turn was overthrown by the Nawabs of Bahawalpur parts of the country were still in possession of the Nahars. The greater part, however, of the south of the district was governed by Makhdums in Sitpur. Until the inroads of Bahawalpur began, nothing is heard of the Nahar or of the Makhdum's government. The Nahars appear to have been indifferent rulers. They left no public works behind them

except Tahir Khan's tomb, and in this rainless and flooded country it is the criterion of a good Governor that he should make canals and protective embankments. The title of Nahar was given to them for their rapacity. Popular stories attest their want of wisdom. One winter night the jackals were howling round Sitpur. Tahir Khan, the Liberal, asked his wazir what made then howl. The wazir answered: "The cold" The Nahar ordered clothes to be made for them. Next night the jackals howled again, and the Nahar asked his wazir what they were howling for. The wazir replied: "They are invoking blessings on you for your liberality." The Makhdums of Sitpur, on the contrary, were good Governors. They dug canals, exteneded cultivation, and one of them founded the town of Rajanpur in the Dera Ghazi Khan district.

The Nawabs of Bahawalpur take Sitpur.

"The divided and weakened state of Sitpur attracted the attention of the Nawabs of Bahawalpur first at the beginning of the eighteenth century. They ruled over a part of the district for a hundred years and left their mark on it by their public works and by introducing an organized revenue administration. The founder of the State of Bhawalpur was Sadik Muhammad Khan, son of Mullan Mubarak Khan, a distinguished resident of Shikarpur in Sind. For some reason not ascertained Sadik Muhammad Khan had to flee from the enmity of Nur Muhammad Kalhora, first of the Kalhora Governor of Sind Sadik Muhammad Khan left Shikarpur in A.D. 1727 (A.H. 1140) and passed with his family and a body of followers through the Muzaffargarh district to Bet Dabli on the borders of the Leiah Tehsil. He was closely followed by the Sind troops under Mir Shah Dad Khan. A skirmish took place in which the Sindhis were defeated. Then Sadik Muhammad Khan took refuge with the Makhdums of Uch who sent him to Hayat Ullah Khan 'Governor of Multan" with their recommendations. Hayat Ullah Khan granted him the district of Choudhry, south of the Sutlej, in Jagir. Sadik Muhammad Khan distinguished himself as an extender of cultivation and a suppresser of robbers. His next promotion was the grant of the town and country of Farid, a robber Chief whom he defeated and killed with his followers. In A.D. 1739 (A.H. 1152) Sadik Muhammad Khan obtained the title of Nawab from Nadir Shah, and in the anarchy following the invasion of Nadir Shah, he succeeded in seizing the country bounded by the Sutlej on the north, Bikaner on the east, Sind on the south and the Indus on the west. Sadik Muhammad Khan was succeeded by his son Bahawal Khan who founded the town of Bahawalpur and who is known as Bahawal Khan, the Great. It was in the time of this successor, Mubarak Khan, that the Nawabs of Bhawalpur first established themselves permanently in the district. In A.D. 1751 (A.H. 1164) Mubarak Khan seized the country about Mudwala, now a large village on the right bank of the Chenab between Shahr Sultan and Alipur, just opposite the junction of the Sutlej and Chenab, from the

Nahars and in the same year he took Bet Dema, a village and tract south of Sitpur, from Makhdum Sheikh Raju of Sitpur Bahawal Khan II was the next nawab. In A.D. 1781 (A.H. 1194) he took the pargana of Jatoi from Makhdum Sheikh Raju of Sitpur. The Indian histories say that he took it on farm, but this is hardly credible. The Nawab was the most powerful and the Makhdums were growing weaker every day. The Nawab had already taken part of the Makhdums country by force., and was shortly to take the rest. It was about A.D. 1790 that the Indus left its old course which joined the Chenab close to Uch and took the bed it now occupies. The south of the district was thus laid open to the attacks of Bahawalpur, and the Nawab at once availed himself of the opportunity. He took without a contest Alipur, Shahr Sultan, Sitpur and Khairpur; in short, the remaining of the Alipur Tehsil, from the Nahars and the Makhdum of Sitpur. He also proceeded to take the whole of the western and southern portions of the Muzaffargarh Tehsil from the rulers of Dera Ghazi Khan. He may be left in possession of the Alipur Tehsil for the present, and an account given of the remaining Governments that existed in the district.

The Second Government Dera Ghazi Khan.

It has already been stated that the Biloches occupied the left bank of the Indus at the end of the fifteenth century, and that in A.D. 1484 Haji Khan founded Dera Ghazi Khan. His son was Ghazi Khan, and alternate Haji Khans and Ghazi Khans ruled until A.D. 1769 (A.H. 1183).As far as this district is concerned, they were good governors. They encouraged agriculture and excavated canals. One of them said to be the Ghazi Khan, founded the town of Kinjhar on the Indus. Mahmud Khan Gujar, was the son of one Yusuf. He became wazir to the last Ghazi Khan and under the pretext of saving Government from conspirators, called in Ghulam Shah Kalhora, Governor of Sindh, who took Dera Ghazi Khan arrested the last Ghazi Khan and carried him as prisoner to Sind. where he died. Ghulam Shah left Mahmud Khan, Gujar, as Governor of Dera Ghazi Khan. He was maintained by the kings of Khurasan, and received from a Nawabship and the title of Jan Nasar Khan. Mahmud Khan, Gujar, ruled for 30 years, and was succeeded by his nephew Barkhurdar, who was superseded by Governors sent direct from Khurasan. Mahmud Khan Gujar, has a great reputation as a good Governor in this district. He brought much land which Government owns to this day. He built the fort of Mahmud Kot. The Shiah Muhammadans in the district date from the time of Kalhora invasion caused by Mahmud Khan, Gujar. After the Gujars, a number of Governors were sent direct from Khurasan. Anarchy prevailed on the left bank of Indus, which prepared the country for the invasion of Bahawal Khan II in 1791. Here may be left the Dera Ghazi Khan part of Muzaffargarh at the same point where Sitpur was left, and an

account be given of the part of the district that was subject to Multan. The history of the Biloches will however, be reverted to in considering the fourth Government.

The Third Government Multan.

The Langahs, already referred to, were expelled in A.D. 1529 by the Afghans, nominally acting on behalf of Babar, and in Akbar's reign Multan was incorporated in the Delhi empire as a subah or province. Of the sub-divisions of the Multan Province, the only two mentioned in the Ain-i-Akbari are Rangpur and Sitpur. Though it is known from general history that this district must have been sometimes subject to Delhi and sometimes to Khurasan, neither monarchy had much effect on its internal history and the local chiefs carried on their public improvements and their little wars without interference from headquarters. Occassionally one of two rival competitors tried to strengthen his cause by obtaining a deed-of-grant from Delhi or Kabul. But a strong band of followers proved a better support than any sanad or farman. A favourite saying of the local historians, in describing the rise of some chief, who, if a settled Government had existed, would have been hanged, is—

Udhar Dilhi di sultanat men fatur;

Idhar shahan Kabul ki nazaron dur.

On that side anarchy in the Delhi kingdom;

On this side far from the eyes of the kings of Kabul.

"It is well therefore, as far as possible, to avoid notice of the nominally central Governments, and only mention extraneous history as far as it bears on the district. On this principle, Multan has no history connected with the district from the time of the Langahs to the establishment of the Multani Pathans, as they were called. These were a family of Saddozai Afghans, and a branch of the family to which Ahmad Shah, Taimur Shah, Zaman Shah and Shah Shuja kings of Kabul belonged. The first of the family who came to India was Hussain Khan, who held Rangpur in his district in jagir in the time of Aurangzeb. Zahid Kan was the first of the family who became Nawab of Multan. This was in A.D. 1738. Between the accession of Zahid Khan and that of his son Shuja Khan simple anarchy prevailed. Shuja Khan was invested with the Government of Multan in A.D. 1767. He founded Shujabad in the Multan district opposite Khangarh. In his time the Bhangi Sikhs overran the country and occupied Multan, driving Shuja Khan to Shujabad. To this day the raids and cruelty of the Bhangi Sikhs live in the memory of the peasants living along the right bank of the Chenab. Shuja Khan was succeeded by his son Muzaffar Khan, who did not recover Multan till A.D. 1779 when he was reinstated by Taimur Shah King of Kabul who

expelled the Sikhs and appointed Muzaffar Khan Governor, with the title of Nawab Muzaffar Khan Governor Multan till A.D. 1818 when it was besieged and taken by the Sikhs, and the Nawab, with five of his sons, was killed. Muzaffar Khan's rule was a continued war. It is, however, only as a civil Governor that he concerns the district, and it is surprising that he should have found time for making such improvements in the country on the right bank of Chenab. The country in this district attached to Multan included the Talukas of Rangpur, Muradabad, Muzaffargarh, Khangarh and Ghazanfargarh. Muzaffar Khan dug canals, made embankments and extended cultivation. He established many persons of his own trible in this part, a fact to be remembered when reference is made to the tenure of the Multani Pathans. In A.D. 1794 he founded the fort and town of Muzaffargarh. His sister Khan Bibi built the fort and town of Khangarh and his brother Ghazanfar Khan the fort and town of Ghazanfargarh.

The Fourth Government

"The fourth Government comprised what is now to a great extent the Kot Adu Tehsil and the Leiah Tehsil which was included in this district in recent years.

The Thal Nawabs.

"The history of this area is bound up with that of Bhakkar Dera Ismail Khan and Dera Ghazi Khan and requires separate recording.

Leiah Tehsil part of Mughal Empire till A.D. 1739.

"The Leiah Tehsil continued to form part of the Mughal Empire until the invasion of Nadir Shah in A.D. 1738. In A.D. 1739 the country west of the Indus was surrendered by the emperor to Nadir Shah, and passed after his death to Ahmad Shah Abdali. The armies of Ahmad Shah marched repeatedly through the district, the cis—Indus portion of which was, with the rest of the Punjab incorporated in A.D. 1756 in the Durrani Kingdom.

Incorporated into Durani Kingdom in A. D. 1756.

During the greater portion of the reign of Ahmad Shah no regular Governors were appointed by the Kabul Government. The country was divided between the Hot and Jaskani chiefs and a number of nearly independent border tribes. Occasionally one of the King's Sardars marched through the country with an army, collecting in an irregular way, and often by force, the revenue that might have been assessed on the different ilakas; but little or no attention was paid to the internal administration of the country untill quite the close of the reign of Ahmad Shah. Two or three years before his death Ahmad Shah deposed Nusrat Khan the last of the Hot rulers of Dera; and after this the province of Dera Ismail Khan was Governed by Kamr-ud-Din Khan and other Governors appointed direct from Kabul. Some ten years later the descendants of Mahmud Khan, Gujar, who had successed the Mirranis in the Government of Dera Ghazi Khan, were similarly displaced; and in A.D. 1786 the old Jaskani family of Leiah was driven out by Abdul Nabi, Serai, to whom their territeries had been granted by the king in Jagir. Towards the end of the country the whole of

the present district on both sides of the river was consolidated into a single Government, under Nawab Muhammad Khan, Saddozai. Before, however, proceeding further it will be necessary to enter into some detail as to the history of the country under the old Biloch families.

Reference to the settlement of the first Biloch chiefs along the Indus are found in Ferishta, and in a Persian manuscript translated by Lieutenant Maclagn. The account given by the latter is that in 874 Hijri (A.D. 1469) Sultan Hussain, son of Kutab-ud-Din, obtained the Government of Multan. He held the forts Shorkot and Chuniewat (in the Jhang District) and of Kot Karer (Karer Lal Isan) and Dinkot (Near Kalabagh). Soon after, Malik Suhrab a dodai Biloch along with his son Ismail Khan and Fateh Khan and others of his tribe, arrived from Kech Mekran and entered the service of Sultan Hussain. As the hill robbers were then becoming very troublesome in the province of Multan, Sultan Hussain rejoiced in opportune arrival of Malik Suhrab, and assigned to him the country from the fort of Karor to Dinkot. "On this becoming known, many Biloches came from Kech Mekran to the service of Sultan. The lands, cultivated and waste, along the banks of the Indus were assigned to the Biloches, and the royal revenue began to increase. The old inhabitants of Dera Ghazi Khan and Multan relate that, after Suhrab's arrival, Haji Khan, with his son Ghazi Khan and many of their kindred and tribe, came from Kech Mekran to enter the service of Sultan. When the tracts along the Indus were in the hands of Malik Suhrab and Haji Khan, Malik Suhrab founded a dera named after Ismail Khan, and Haji Khan another with the name of Ghazi Khan. This account is confirmed, though in less detail, by the historian Ferishta.

Submission of these Biloch Chiefs to Emperor Sher Shah, A.D. 1540.

We next hear of these chiefs in A.D. 1540. In that year the Emperor Sher Shah visited Khushab and Bhera in the Shahpur district and made arrangements for bringing into submission the south-western portions of the Punjab. Among other chiefs who then appeared and tendered their submission were Ismail Khan, Ghazi Khan and Fateh Khan, Dodai Biloches. These were probably descendants of the men mentioned above, it being the custom in these families to have a common name by which the ruling chief for the time being was always known. Thus the Hot chiefs of Dera Ismail were always called Ismail Khans, while the Mirranis of Dera Ghazi were called Ghazi Khans and Haji Khans. The Biloches are spoken of in the accounts of that time as a barbarous and daring tribe that had long been settled in great numbers in the lower Punjab. Mr. Fryer in his Settlement Report of Dera Ghazi Khan district mentions that the first Ghazi Khan is proved by the date on his tomb to have died in A.D. 1494. This would agree with the date in the manuscript

quoted above and would fix the latter half of the fifteenth century as the period when the main Biloch immigration took place would also allow sufficient time for the Biloch headmen who have become the chiefs of the country by the time of Sher Shah's visit to Khushab in A.D. 1540. The history of these Biloch settlements is involved in a good deal of doubt and confusion caused in a great measure by the common custom of the local historians of assigning the founding of the principal towns and villages to the chiefs of the early settlers or their sons, from whom they are supposed to be named.

Main facts to be gathered from Early History.

The main facts established appear to be that the early settlers were grouped under two leading families: the Ismail Khans and Ghazi Khans. Both of these were probably of one stock, *viz.*, Dodai Biloches; but this name Dodai dis-appears altogether and in the local history Ghazi Khan's tribe is known as Mirrani Biloches, and Ismail Khan's as Hot Biloches. The Dodais are, according to the Biloches, a mixed tribe of Jat origin belonging to the Satha-Surma clan, now represented by the Surma of Leiah; Doda their founder married a Biloch wife. This tribe owned Dera Ghazi Khan before the Biloch irruption, and retained it, being assimilated by the Biloches. The Mirranis of Dera Ghazi Khan were Dodais; the Hots, on the contrary, were Biloches of pure blood. The Hots, according to Biloch tradition, are one of the five main branches into which the Biloches originally divided i.e., Rind, Lashari, Hot, Korai and Jatoi, who took their names from the four sons and the daughter of Mir Jalalan, the common ancestor. They could scarecel therefore be a branch of the Dodai. The Governor of Multan seems to have asigned to these two families the land along the Indus, including both banks from its junction with the Chenab upwards. They first established themselves on the right bank, but by degrees threw out parties who took possession of the left bank as well. Very little is known about these Hot chiefs. They ruled continuously at Dera Ismail Khan from their first settlement till about A.D. 1770, when the last of them Nusrat Khan, was deposed by King Ahmed Shah and taken as a prisoner to Kabul. In A.D. 1794 the Government of the province was transferred to Muhammad Khan, Saddozai. The Hots now disappeared from history.

Last Hot Chiefs Nusrat Khan displaced in A. D. 1770 by Ahmad Shah.

Rule of Mirrani Chiefs in Leiah.

The land of the Leiah Tehsil along the southern boundary of the old Dera Ghazi Khan district appears to have been included in that section of the Indus valley which had been assigned to the Mirranis. These are said to have founded Kot Adu, Kot Sultan, Leiah and Naushera. Beyond Naushera the country probably at first belonged, by the terms of the original assignment, to the Hots. The towns above mentioned are said to have been founded about A. D. 1550 by the four sons of the Ghazi Khans. The eldest of these Kamal Khan, the founder of Leiah

is said to have held a sort of supremacy over his brothers. It appears, however, that the Mirranis never held Leiah as an independent Government. The Ghazi Khans held the Leiah Province as part of the Ghazi territory, much as the Hots of Dera held Darya Khan, neither of them having their headquarters in the cis-Indus tehsils. It was under these circumstances that the Jaskanis rose to power. Mir Chakar was a leading man among the earliest of the Biloch settlers of the Leiah Province. One of his descendants, Daud Khan, established himself as a robber chief in the jungles between Karor and Leiah, with headquarters at Wara Gish Kauri. He collected a large number of followers, and at the head of 500 horse he defied both the Mirranis of Dera Ghazi Khan and the Hots of Dera, on whose borders he was established. This was during the reign of Akbar in the latter half of the sixteenth century. Eventually Emperor Akbar sent a force against him, and he was killed and his band broken up. The tribe seems, however, to have again gathered together, and in the beginning of the seventeenth century Biloch Khan, their Chief received from the emperor a grant of the country from Mahmud Kot to Khola in Mianwali. The Jaskanis do not appear, however, to have succeeded in getting possession of the portion of the tract granted lying to the north of Darya Khan. This was held by the Hots of Dera till the end of the eighteenth century. Probably the Jaskanis get nothing more than what they already possessed in fact, though perhaps in nominal subordination to the Hots and Mirranis. Henceforth they were independent, and the Mirranis lost their hold on the Leiah Province altogether. The Mirranis are said to have been finally ousted from Leiah about A.D. 1620 The leading Biloch tribes of the Bhakkar and Leiah Tehsils all claim descent from Biloch Khan. They are the Jaskanis, Mandran Mamdanis, Kandanis, Sarganis and Malianis Baloch Khan was succeeded by Jask Khan, Bhakkar Khan, Langar Khan, and other chiefs of his family whose deeds are much exaggerated by local tradition.

Rise of Jaskanis in latter half of Sixteenth Century.

Leading Jaskani Clans.

At the beginning of the seventeenth century the Jakanis ruled over Bhakkar and Leiah and across the Thal to the Chenab side. They seem to have been more or less at war with the Sials of Uch, and also came occasionally into contact with the Sikhs, who were then becoming a power in the Punjab.

Extent of Jaskani Territory.

Biloch Khan. the Blind, one of the most famous of these Jaskanis, is said to have been killed in A.D. 1746 in a fight with Jhanda Singh and Ganda Singh, the Sikh leaders. It is probable that the real date of this event was somewhat later, and that this is probably the same Jhanda Singh who took Multan in A.D. 1772. In Cunningham's "History of the Sikhs" it is mentioned that from A.D. 1772 to the retaking of Multan by the Kabul King, the Bhangi Sikhs were predominant in all the Southern Punjab, and that "they seem to have possessed Mankera as well as Multan, and to have levied exactions from Kalabagh downwards." Local tradition is against Mankera having been occupied

Under Biloch Khan, the Blind, they come into conflict with Sikhs.

by the Sikhs before its final capture by Ranjit Singh, and any expedition made by them in this direction can have been little more than a transitory raid. The history of these times is wrapped in much obscurity, and the accounts, being based only on tradition, are often contradictory.

Fateh Khan, Jaskani, A.D. 1746-70.

Fateh Khan succeeded his father Biloch Khan, the Blind. Towards the end of his rule Nusrat Khan, Hot of Dera Ismail Khan crossed over to Bhakkar and defeated Fateh Khan's son, also named Nusrat, whom he took prisoner with him to Dera. Hassan Khan, Laskrani, who was wazir of Fateh Khan, was ordered on this, to attack Dera, but he made excuses; and an attempt of Nusrat Jaskanis' mother to obtain his release led to her attempted violation by Nusrat Khan, Hot, Nusrat, Jaskani, was after this released, but both he and his father Fateh Khan poisoned themselves through shame at the disgrace. The whole affair was a great scandal; and, as Nusrat Khan, Hot, bore a bad character as a tyrant and wine-bibber, the king, Ahmed Shah, who was desirous of tightening his hold over these semi-independent provinces, took advantage of the excuse to deprive him of his Government and to remove him as a prisoner to Kabul.

Wazir Hassan Khan Laskrani, A.D. 1770-79.

Meanwhile Hassan Khan, Laskrani, ruled the cis-Indus country in the name of Hayat Khan, the grandson of the former chief Fateh Khan.

Hayat Khan Jaskani, A.D 1779-87.

Being desirous, however, to keep the Government in his own hands he continued to keep Hayat Khan under close surveillance in the fort of Mankera even after the later had attained his majority. Hayat Khan evently managed to escape, and getting together a party, he defeated Hassan Khan and took him prisoner. Hassan Khan was soon afterwards murdered by some of Hayat Khan's attendants who were opposed to him. The Government of the Jaskanis, however, was now fast breaking up. The Sarganis, who were then a strong tribe and had been much pampered by Hayat Khan, took offence at an expedition fitted out by Hayat Khan against one Gul Muhammad of Uch, a holy individual who had been trying to establish his independence in the Chenab country. They accordingly attacked him treacherously and murdered him in his fort of Mankera in A.D.1787. After this the Sarganis, under their chief, Gula Khan held out for some time against Muhammad Khan, the brother and successor of the deceased Hayat Khan. They were eventually defeated by the Jaskani party under the leadership of Diwan Ladda Ram and their cheif, Gula Khan, having been killed in this action, the Sarganis came to terms with Muhammad Khan and were brought off with the Munda Shergarh country, which was granted to them in Jagir.

Muhammad Khan Jaskani A.D.1787-89.

Contemporary History of Dera Ghazi Khan.

Reference must now be made again to the affairs of Dera Ghazi Khan, whose chief had always exercised a good deal of influence, if not authority, over the Leiah portion of the Jaskani dominions. The Dera Ghazi Khan history is mostly fragmentary and conflicting.

Conflict between Durrani Monarch and Kalhoras of Sindh.

It appears that all through the reign of Ahmed Shah, Abdali (A.D. 1747-73), the old Mirrani family was being gradually crushed out in the conflict between the Durrani King by and the Kalhoras of Sindh; and during the whole of this time Mahmud Khan Gujar, Wazir under the last of the Ghazi Khans, was playing a double game, sometimes on one side, sometimes on the other. When the country west of the Indus was ceded to Nadir Shah in A.D. 1739 he confirmed Mahmud Khan as Governor; and Mahmud Khan seems also to have been continued by Ahmad Shah when he passed through Dera Ghazi Khan in A.D. 1748. All this time, however, the Kalhora rulers of Sindh claimed the sovereignty of the country, and though Sindh itself was nominally a portion of the territory ceded to Kabul by the Emperor of Delhi, still the hold of the Kabul King, even over Dera Ghazi Khan, was weak and intermittent and no revenue could be obtained from Sindh without hard fighting. The Kalhora princes at this time were Nur Muhammad, generally called Nur Muhammad, Serai, and after his death his son Ghulam Shah. This is the Nur Muhammad who fought with the Hots of Dera Ismail Khan, and is said by Captain Mackenzie to have governed Leiah and the Sindh-Sagar Doab to the Chenab. Captain Mackenzie writes that he pushed back the Jaskanis, and took possession as far as Darya Khan, but this does not agree with what seems to be the correct account. The Jaskanis continued to hold Leiah till A.D. 1787, while Darya Khan was never held by them at all. It is quite possible, however, that the Jaskani chiefs may, for a time prior to the invasion of Nadir Shah, have admitted the supremacy of the Kalhoras, who were then practically indeppendent princes of a large and wealthy province and might well have extended their authority over the smaller chiefs to the north. At Dera Ghazi Khan the last chiefs of the Mirrani line and Mahmud Khan, Gujar, who though titularly their wazir, appears really to have been more powerful than his nominal masters, also held their Government in subordination to the Kalhoras; and though the rule of the latter after Ahmad Shah's accession, was rather intermittent, still they do not appear to have given up their claim to Dera Ghazi Khan till they were themselves driven out of Sindh.

Mirranis Driven out of Dera Ghazi-Khan, A.D. 1758.

In A.D. 1758 the king sent a force under Kaura Mal, by whom the Sindh party was defeated in a fight near the town of Dera Ghazi Khan. The Mirranis at this time were split up into rival fractions who took opposite sides, and many of them after this even migrated to the neighbourhood of Leiah where they are still found in considerable numbers. This Kaura Mal was afterwards Governor of Multan, and exercised a sort of authority under the king both over the Mirranis of Dera Ghazi Khan and over the Jaskanis of Leiah.

Mahmud Khan appointed Governor and succeeded by his nephew.

In A.D. 1967 Ghulam Shah Kalhora, again attached Dera Ghazi, and finally drove out the **Mirranis. He put in** Mahmud Khan, Gujar, as Governor, and Mahmud Khan was

succeeded by his nephew Barkhurdar, who was killed in A.D. 1779, when the province was put under Governors appointed direct from Kabul. Neither Mahmud Khan, Gujar, nor Barkhurdar exercised any authority over Leiah and the cis-Indus country. They were purely Governors of Dera Khazi Khan.

Kalhoras driven out of Sind A. D. 1772.

Ghulam Shah took Dera Ghazi in A.D. 1769; but in A.D. 1772 the Kalhoras were themselves driven out of Sindh by the Talpurs. This threw them entirly into the hands of the Kabul king, and they retired with their following to Dera Ghazi Khan, where they were granted considerable jagirs; henceforth they are known as Serais, instead of by their old name of Kalhoras. The Serais, finding themselves stranded at Dera Ghazi Khan with a large armed following, now commenced to look about for some territory in which to found a new principality. The Jaskani country, torn by internal faction, and attached by old tradition to the province of Dera Ghazi Khan, was close at hand, and in every way suited for the purpose. Armed therefore with a sanad from Taimur Shah, Abdul Nabi, Serai, brother of Ghulam Shah, entered into a league with the turbulent Sarganis, and in 1789 marched against Leiah. Muhammad Khan, Jaskani, was defeated, and fled to the Tiwana country and thence to Bahawalpur. The Nawab of Bahawalpur would probably have assisted him to recover his country, but Muhammad Khan, with the pride of a Biloch, insultingly refused to give the Nawab a valuable work on hawking for which he had asked and ended his days as a dependant on Hasad Khan, the Nathani chief of Sagar. The present representatives of the Jaskani family are mentioned in the notes on leading families. Thus ended the line of the Jaskani chiefs after a rule of more than 200 years. Abdul Nabi Serai, held the Leiah Government only for three years. Complaints were made to the king of his tyrannical rule, while an appointment was wanted for Muhammad Khan, Saddozai. The latter was cousin to Muzaffar Khan, Nawab of Multan, for whom he had for some time acted as Governor of Multan to the satisfaction of the king. A sanad therefore was soon drawn out appointing Muhammad Khan Nawab and Governor of the Sindh-Sagar Doab from Kallur Kot to Mahmud Kot and from the Indus to the Chenab. Muhammad Khan had still to take possession, which was not to be done without fighting. He was met by Abdul Nabi near Leiah, and in the battle that ensued the Serais had at first the advantage, and the Nawab's people fled. Nawab Muhammad Khan himself was ready to fly, saying "What can a King do without any army" but was stopped by his Jamadar, who said: "Better die than fly." Eventually he rallied a part of his forces and meanwhile some Labanas crept up through a Bhang field and attacking the Serais from behind, killed Muhammad Arif, the son of Abdul Nabi, who had been the soul of the fight, and the Serais being disheartened gave in. The Serais were allowed a day to remove their property and departed by beat to their own country to the south.

Henceforth Known as serais.

Under Abdul Nabi serais, driven Jaskani, out of Leiah.

Extinction of Jaskanis as Ruling family, A D. 1789

Abdul Nabi Serais held Leiah until A.D. 1792.

Appointment of Muhammad Khan, Sadozai, as Governor A.D 1792.

He fought Abdul Nabi at Leah.

Defeat of Abdul Nabi

Prince Humayun, defeated by Zaman Shah escaped to Leiah, 1794

Meanwhile Taimur Shah had died in A.D. 1793. He was succeeded by Zaman Shah, whose title was, however, disputed by Prince Humayun. In A.D. 1794 Humayun made his second attempt to recover the kingdom from Zaman Shah, but was defeated and fled to Sagar, where Massu Khan, Nutkani, chief of Sagar, assisted him and managed to smuggle him across the Dera Fateh Khan ferry. He got to Leiah and stopped at a well, where curiosity was excited by his paying an ashrafi piece for a few sticks of sugarcane that he had taken. The news came to the ears of Nawab Muhammad Khan who happened to be at Leiah at the time. The Nawab suspected that it must be the Prince Humayun, for whose capture strict orders, with promises of untold rewards, had been issued by Zaman Shah. He accordingly collected some horsemen and pursued Humayun, whom he overtook at a well in the Thal some 15 miles from Leiah. Humayun had some 20 to 30 horsemen with him, who in desperation made a good fight. Humayun's young son was killed, and Humayun himself was taken prisoner and brought into Leiah. The Nawab at once reported the capture of Humayun to the king, Zaman Shah, who sent orders that Humayun's eyes should be put out and his companions disembowelled. He also conferred on the Nawab the name of Sarbuland Khan, and the Government of Dera Ismail Khan in addition to that which he already held. The orders of the king were carried out at Leiah. Among Humayun's attendants who suffered was a brother of Fateh Khan Barakzai,. Humayun himself passed the rest of his life in confinement.

Nawab Muhammed Khan captured Prince and rewarded with Gover-nor-ship of Dera Ismail Khan.

The province of Dera, of which Muhammad Khan now became Governor extended from the Khasor range to the Sagar country, ruled over by the Nutkani chief. Nawab Muhammad Khan had his headquarters at Mankera and Bhakkar, and governed Dera by deputy. He left his mark on the north of the district by the canals which he dug. It is he that is referred to as the Nawab of the Thal. In A.D. 1815 he died. He left no son, and was succeeded by his son-in-law, Hafiz Ahmad Khan.

Death of Nawab Muhammad Khan, A. D. 1815.

Muhammad Khan was undoubtedly a man of great character and during his lifetime the Sikhs abstained from attacking the Leiah territories. Immediately on his death a demand for tribute was made on Hafiz Ahmad Khan. On his refusal, the forts of Khangarh and Mahmud Kot were occupied by the Sikhs, and great atrocities were perpetrated on the Muhammadan population of the neighbourhood until Hafiz Ahmad Khan procured the withdrawal of the Sikh garrisons by the payment of a large sum of money, and thus recovered the forts, with part also of the plunder extorted. After this the Sikhs Government continued to press the Nawab with all kinds of extortionate demands. Among other things, Ranjit Singh was especially fond of seizing any valuable horses he might hear of, and made the Nawab yield up some of his special fovourities. In A.D. 1818 Multan, in spite

His son-in-law Nawab Hafiz Ahmad Khan succeeds him and comes into conflict with Sikhs.

Multan captured by Sikhs in A. D. 1818

of the gallant resistance offered by Nawab Muzaffar Khan, had been taken by the Sikhs. Hafiz Ahmad Khan had not dared to assist a brother of Nawab and Kinsmen in the struggle, and his own turn was soon to come. In the autumn of 1821 Ranjit Singh, disengaged from more serious matters, determined to reduce him. He accordingly marched with an army through Shahpur to a point on the Indus opposite Dera Ismail Khan. He sent a force of 8,000 men across the river, and on this the town was surrendered by the Governor Diwan Manik Rai. Bhakkar, Leiah, Khangarh and Maujgarh were all successively reduced without resistance. Mankera, fortified by a mud wall and having a citadel of brick, but protected more by its position in the midst of a desert, was now the only stronghold remaining, and a division was advanced for its innvestment on the 18th November. Sardar Khan, Badzai a bold, impetuous man, recommended Hafiz Ahmad Khan to march out at once and attack the Sikhs. "To fight in the plain," said he, "is the business of a lion, to hide in a hole that of a fox." Hafiz Ahmad Khan, however, was not to be persuaded, and preferred to stand a siege. The Sikhs now set beldars to dig kachha wells for the use of the troops, and in the meantime water had to be brought on camels and bullocks from Maujgarh. The wells were ready by the 25th November, and Ranjit Singh then moved to Mankera with his main force; and on the 26th November the investment was completed. The bombardment of the place was continued for ten days after this, but not without loss to the besiegers. At last, one of the minarets of the fort mosque having been broken by the Sikh fire, Hafiz Ahmad Khan looking on this as an unlucky omen and thinking that enough had been done for hour, proposed terms and agreed to surrender the fort on condition of being allowed to march out with his arms and property, and to retain the town and province of Dera with a suitable jagir. Ranjit Singh granted the terms and the place was surrendered accordingly. The Nawab was treated with great civility and was sent with an escort to Dera. Ranjit Sigh now annexed the cis-Indus tehsils. It must not be imagined that under the Sikhs the whole cis-Indus territory formed one compact Government. A great portion of it was held in jagir, each jagirdar prossessing judicial and executive authority within the limits of his jagir, and being quite independent of the kardar to whom the khalsa portion of the district happened to be leased. These jagirdars were almost invariably non-residents, and put in agents, known as kakims, to manage their estates. These kakims were more or less in the habit of raiding on one another and lifting cattle; and the country until the time of Diwan Sawan Mal was generally in a disturbed state. These jagirs were mostly in the Thal. The whole of the cis-Indus jagirs granted by the Sikh Government, with the exception of one or two small villages, have now been resumed.

Ranjit Singh besieged and took Mankera in A.D. 1821.

Jagirs under Sikh Rule.

Union of Four Governments

The history of the four Governments has now been brought to the point where they being to all and to become united under

one head. The process was completed between A.D. 1790 and 1821. Bahawal Khan II had the district lying open to him by the shifting of the Indus to the west, and having just seized those talukas which now form the Alipur Tehsil. In the part of the district which had been ruled from Dera Ghazi Khan there prevailed the anarchy which followed the rule of Mahmud Khan, Gujar. Between A.D. 1790 and the end of the century Bahawal Khan II took possession of the talukas of Arain, Kinjhar, Khor, Mahra, Seri and Trund, which now form the southern and western parts of the Muzaffargarh Tehsil. This country and the Alipur Tehsil were called Kachhi Janubi, opposed to the Kachhi Shumali of the Thal Nawabs. He and his successors Sadik Khan II and Bahawal Khan III brought the country under a settled Government encouraged cultivation and excavated canals. The dates of their accessions and deaths are not on record until the time of Bahawal Khan III, who was the Governor that helped Edwardes at the siege of Multan. He died in A.D. 1852. In A.D. 1818 the Sikhs took Multan, and the talukas formerly governed by Muzaffar Khan viz., Rangpur, Muradabad, Muzaffargarh, Khan-Garh and Ghazanfargarh, were henceforward administered by the Sikh Governors of Multan. In 1819 the Sikhs took Dera Ghazi Khan but Bahawal Khan remained in possession of his conquests. In 1821 the Sikhs took Mankera, from which the north of this district was governed. Bahawal Khan submitted to the Sikhs, and thus the whole district became united under the rule of Ranjit Singh. A redistribution then took place. Bahawal Khan was confirmed in his conquests, which were formed to him for a sum the amount of which is uncertain. The northern part of the district continued to be governed from Mankera, and Muzaffar Khan's talukas were governed from Multan. The Multani Pathans fled the country and went for the most part to Dera Ismail Khan, not to return until the British came in A.D. 1849. In 1822 Diwan Sawan Mal, who was peshkar to the Governor of Multan. Bhava Badan Hazari, fell out with his superior Officer and the talukas of Muzaffargarh, Muradabad, and Gazanffargarh were given to him by Ranjit Singh in farm. Bahawal Khan failed to pay the sum for which his country was formed to him. General Ventura was sent from Lahore with an army, and drove the Bahawalpurians out of the district and across the Chenab, which has since formed the boundary between this district and Bahawalpur Eventually, in 1837, the whole of the present district of Muzaffargarh was united under Diwan Sawan Mal, Governor of Multan, under the Sikhs.

United Government under Diwan Sawan Mal.

Though under the Bahawalpur Nawabs, parts of the district had enjoyed a fairly settled administration, Diwan Sawan Mal's Government was better than anything that had preceded it. Its Sole object was the accumulation of wealth for the Diwan. The execution of public works, the administration of justice and

security of life and property, were a secondary consideration and were insisted on only because without them agriculture would not prosper, and the revenue would not be paid. His revenue system is noticed in Chapter III. During his time a large number of Labana colonists from the Punjab was settled in the district.

Diwan Sawan Mal died on the 29th September 1844 and was succeeded by his son Mul Raj, of whom nothing particular connected with the district is known.

Multan War, 1848.

In April 1848 Sir Herbert Edwardes, then Assistant to the Resident at Lahore, heard of the news of the outbreak at Multan and the murder of Vans Agnew. He was then at Dera Fateh Khan. He immediately crossed the river to Leiah, but retreated on the advance of a force sent by Diwan Mul Raj. The next month passed in movements and counter-movements in the neighbourhood of Leiah. Meanwhile, Edwardes had collected a mixed force made up of mainly Multani Pathans and of men of the Pandapur, Ustrana and other border tribes. On the 21st May he heard of the occupation of Dera Ghazi Khan by a force that he had sent down the right bank of the Indus under Van Cortlandt. He then proceeded to move towards Multan. On his march he fought the battles of Kaneri and Sadduzam, in which his rough levies behaved with great gallantry. These same forces took part in the siege of Multan under General Whish. On the taking of Multan, 22nd January 1849, the greater number were discharged and returned to their homes; 2,000 however, of Edwardes' levies were retained in Government employ, and the leading sirdars all received handsome pensions from Government.

Punjab annexed by British Government on 29th March 1849.

On the 29th March, 1849 the Punjab was annexed and the territories forming the present district, which were for the most part already under the control of British Officers, became formally a portion of the British Empire as parts of Khangarh and Leiah districts.

First war of Independence.

The treatment meted out to muslims and the general realization regarding the decaying powers of the Mughals once again awakened the latent energies of the muslims which were channelized in freedom movement in 1857—freedom from the Britishers. Its effects were felt far and wide and in fact it shook the foundation of the British ascendency once although it ultimately took away the last vestiges from the crown of the Mughals as the last Emperor was de-throned and imprisoned in Rangoon after 1857.

Constitution of District and change of Boundaries.

The British district of Khangarh contained the present Tehsils of Muzaffargarh and Alipur, and the talukas of Garh Maharaja and Ahmadpur, which are now in Jhang. Khangarh was first named as the headquarters of the district, but before the end of 1859 they were removed to Muzaffargarh. Khangarh contained

four Tehsils: Rangpur, Khangarh, with its headquarters at Muzaffargarh, Kinjhar and Sitpur. In 1859 the Kot Adu Tehsil was separated from Leiah and added to this district, and the district took the name of Muzaffargarh and was attached to the Multan Division. In 1861 the Rangpur Tehsil was abolished . The talukas of Garh Maharaja and Ahmadpur were joined to Jhang, and the rest of the Tehsil was attached to the Muzagargarh Tehsil. The Kinjhar Tehsil was abolished and its talukas added to Muzaffargarh The Sitpur Tehsil was moved to Alipur.

Before annexation of cis-Indus tract was included in the Government of Diwan Sawan Mal. At the first arrangements of the district the trans-Indus Tehsils of the old Dera Ismail Khan and Bannu Districts were formed into the Dera Ismail Khan district, with headquarters at Bannu. The cis-Indus Tehsils, that is, Mianwali, Bhakkar and Leiah and till 1859 the Kot Adu Tehsil of Muzaffargarh, formed the Leiah district, with headquarters at Leiah. This arrangement though in many respects more convenient than the later one, was set aside in 1861 as the charge of so long a border was considered too heavy for the Deputy Commissioner of Dera Ismail Khan. The northern portions of the two districts were then formed into the Bannu district, the southern into the Dera Ismail Khan district. The original division was longitudinal, the Indus being the boundary, the new division was transverse, sections of the country on both sides of the Indus being included in each district.

Leiah District formed. Leiah district broken up in 1861 and Leiah Tehsil transferred to Dera Ismail Khan district.

The new Dera Ismail Khan district consisted of five Tahsils. Of these Dera Ismail Khan, Kulachi and Tank were trans-Indus, and Leiah and Bhakkar cis-Indus.On the breaking up of the old Leiah district on the 1st January 1861 the headquarters of the Commissionership were transferred from Leiah to Dera Ismail Khan, which from being an out-station, became the capital town of the division. The new Leiah Tehsil included the southern part of the old Mankera Tehsil broken up in 1853-54, when the Chaubara, Nawankot and Maujgarh talukas were transferred to Leiah; the village of Paharpur was transferred from the Kot Adu Tehsil in 1861 and a strip of riverside villages was transferred from the Sanghar Tehsil in 1869. In 1874 Sukhani and six other villages were transferred from the Sanghar (now Taunsa) Tehsil of Dera Ghazi Khan to Leiah.

Headquarters of Commissioner moved from Leiah. Constitution of new Leiah Tehsil.

On the separation of the North-West Frontier Province from the Punjab, a further reconstitution took place and on the 9th November 1901 the Mianwali district was formed out of the four Tehsil of Isa Khel, Mianwali, Bhakkar and Leiah, the former two being taken from Bannu, and the latter two from Dera Ismail Khan. The headquarters was fixed at Mianwali, the Bhakkar and Leiah Tahsils forming a sub-division, with headquarters at Bhakkar and the district was included in the Multan Division.

In 1901 Leiah was transferred to new Mianwali district.

In 1909 Leiah was transferred to Muzaffargarh distric.

On the 1st April 1909 the Leiah Tehsil was transferred to the Muzaffargarh district and became its sub-division.

Multani Pathans.

The only political colonists who were introduced during British Rule were the Multan Pathans, who returned and partly recovered the lands from which they had been expelled in A.D. 1818 by the Sikhs.

List of Deputy Commissioners, since partition with their tenure.

	Name.	From	To
1.	Raja Sultan Lal Hussain, PCS	15-1-1944	19-8-1947
2.	S. Ejaz Hussain Shah, PCS	19-8-1947	8-11-1947
3.	Mr. C. H. Disney, PCS	8-11-1947	1-1-1948
4.	Mr. S. M. Rashid, PCS	1-1-1948	11-8-1950
5.	Mr. M. A. Cheema, PCS	11-8-1950	10-11-1950
6.	Qazi Rahmat Ullah, PCS	10-11-1950	1-12-1950
7.	Pir Karam Hussain, PCS	1,12-1950	13-8-1951
8.	Mr. Inayat Ullah, C.S.P.	13-8-1951	8-9-1951
9.	Mr. Masood, C.S.P.	8-9-1951	18-12-1951
10.	Pir Mubarak Ali Shah PCS	18-12-1951	3-3-1952
11.	Mr. Masood, C.S.P.	3-3-1952	7-5-1953
12.	Mr. G. Yazdani Malik, C.S.P	7-5-1953	20-9-1954
13.	Mr. Abdul Qayyum, C.S.P.	20-9-1954	7-5-1955
14.	Mr. M. A.. Avaiz, C.S.P.	7-5-1955	29-9-1956
15.	S. Atta Muhammed Khan, PCS	29-9-1956	31-12-1957
16.	Malik Noor Muhammd, PCS	31-12-1957	16-12-1958
17.	Raja Ghulam Mehdi Khan, PCS	16-12-1958	25-3-1959
18.	Ch. Sultan Mahmood, PCS	25-3-1959	9-11-1960
19.	S. Manzoor Hussain, PCS	9-11-1960	1-10-1962
20.	S. M. Askari, Taqvi, C.S.P.	1-10-1962	10-5-1963
21.	Malik Ahmed Khan, PCS	11-5-1963	to date

The rest of the British period was of comparative calm with the exception of undesirable events in the days of communal strife. The population in the arid and semi arid tract in this district had little time for taking any active and formative part in the political struggles of the country. **Recent History.**

The year 1947 was momentuous in our national history. The two nation theory gave a home land to the muslims of the sub-continent. The refugees who followed the exodus of the Hindus came from districts of Rohtak, Karnal, Patiala, Hissat, Ludhiana and minor percentage from other districts of East Punjab and U.P. After independence two projects namely Thal and Taunsa were executed. Maximum number of roads were constructed. The trade and industry was re-organized.

There are no places of real Archeological interest in the district. Following are protected monument under the Ancient Monuments preservation Act, VII of 1904:— **Archaeological Remains and Protected Monuments**

(1) Tomb of Tahir Khan, Nahar, at Sitpur;

(2) Mosque of Tahir Khan, Nahar, at Sitpur;

These have brown and yellow tiles and glazed bricks, points of difference to the Multan and Dera Ghazi Khan tombs. Their date is A.D. 1475.

(3) Cemetery at Muzaffargarh; and

(4) Cemetery at Leiah.

The tomb of Hazrat Lal Isan dates back to A.D. 1400, but is not a protected monument. So also is the tomb at Daira Din panah. These are referred to elsewhere. There are mud forts of Ranjit Singh's time at Munda, Chaubara, etc, in the Thal.

CHAPTER—I SECTION—C.
POPULATION.

General.

The area of Muzaffargarh District is 5,613 square miles. Its position in respect of area is 18th in Pakistan and 17th in West Pakistan. The population according to the Census of 1961 was 9,89,878 which gives a mean density of 176 per square mile. In order of density the District stands 42nd in Pakistan and 26th in West Pakistan.

The incidence of the rural population comes one person per acre. The occupational trend and material conditions of the people have been discussed in Chapter II, Section-C. The District has low rainfall and agriculture is dependent on irrigation. The population has been rising steadily particularly during the last two decades due to the migration of refugees, colonization of land and high birth rate. The recorded increase during the decade ending in 1961 comes to 31.76% over preceding Census. This is the maximum since 1901.

Keeping in view the incidence of population on cultivated area which is almost one man to an acre, it appears that Muzaffargarh District has reached a saturation point. However, keeping in view the availability of large undeveloped tracts, the mechanisation of agriculture and improved methods of agriculture with intensive cultivation, there is cetrainly no indication that pressure on land is unduly heavy.

Table 6 of volume B gives density of population for each Tehsil and for the whole of the district showing the distribution between towns and villages.

The following table gives Tehsil-wise distribution of population 1961:—

Tehsil.	Area in square miles.	TOTAL POPULATION			Density per square mile of total area.
		Total	Males	Females	
Muzaffargarh	918	2,90,986	1,55,125	1,39,861	317
Alipur	927	2,41,029	1,28,413	1,12,616	260
Kot Adu	1,340	1,84,639	98,997	85,647	138
Leiah	2,428	2,73,924	1,47,982	1,25,242	112
Total ..	5,613	9,89,878	5,30,512	4,59,366	176

It will be seen that most thinly populated tract in the district is Thal which lies in Leiah and Kot Adu Tehsils. Next comes the riverain tract of which the Alipur Tehsil has the largest area. The most thickly populated Teshil is Muzaffargarh where agriculture has been going on since centuries.

Towns and Villages.

Number of persons in 1961 per occupied house in villages was 4.8 and in towns 4.6 as compared with 4.5 and 3.9 in the year 1921. This shows that there has been appreciable increase per house-hold in the cities.

Basic.

The number of towns and villages in the district besides the colony chaks is 921 at present as compared with 825 in the year 1929. This may be classified as follows:—

	1929	1961
With population under 500	482	391
,, ,, from 500 to 1,000	192	189
,, ,, from 1,000 to 2,000	134	206
,, ,, from 2,000 to 5,000	43	121
,, ,, from 5,000 to 10,000	4	12
,, ,, from 10,000	..	2

For Census purposses a village has been taken as a basic unit. Its population was 600 or it had contiguous collection of about 150 houses on an average, this type of the village was constituted into a block. The village was defined as it has been defined in the Land Revenue Act and its boundry has been kept coterminous with that of a revenue estate. Some of the revenue estates have been partialled into chaks. The number of such chaks is 705 with an approximate population of 500 to 800 each.

Towns.

The population of towns is given below:—

Tehsil	1961	1921
Muzaffargarh .. — — — —	14,474	5,386
Leiah	19,608	8,476
Kot Adu	13,107	..
Karor	5,967	3,539
Khangarh	5,371	3,184
Alipur	6,369	3,434
Jatoi	5,384	..
Dera Din Pannah	3,073	..

Villages.

There are 921 villages at present besides 705 colony chaks in the district. In old villages, owing to the peculiar constitution of what most nearly corresponds in Muzaffargarh district with the village community of the former Punjab the villages are for the most part collections of a greater or less number of plots of land surrounding wells, while the men who have sunk these wells and brought adjacent land under cultivation have often little real connection with the owners, of the other wells within the village boundaries. This is why most of the cultivators instead of residing in the homestead live permanently at their wells so that instead of one defined abadi the population occupies a series of detached hamlets scattered over the face of the countryside. The abadi varies from place to place in size. Being a border district and people primarily engaged in the pastoral rather than agriculture occupations prefer to live in scattered hamlets and thus prevent the growth of really large villages, except those which are important business centres. The colonization undertaken by the Thal Development. Authority and the general tendency for availing facilities of electricity, education and health, has encouraged growth of big village. For instance the number of villages having population from one to two thousand, two to five and five to ten thousands have multiplied from 100% to 400%.

Grouping of houses.

Small well abadis consist usually of a few huts for the tenants or cultivating landlords and a shed or two to accommodate the cattle. They are built as close to the well as possible. The next larger hamlets, where a whole family of proprietors lives on a well, are made of houses built together. The still larger abadis, where several families live together with a few artisans, are arranged so that there is a lane or street running through the centre and a few lanes by way of reaches to the houses built in the interior. The arrangement of houses in the larger villeges or towns and chaks carved out by T.D.A. is more systematic and there are regular streets and lanes. The shops are always built in the central street and the dwelling-houses do not usually open into the main street. The artisans usually live at one end or on the skirts of the village. Owing to excessive heat, the main street of a twon is often roofed. At Muzaffargarh or other twons

which are being extended the streets are too broad to be roofed, but in the old towns of the Alipur Tehsil for instance the style of comparatively narrow streets still exists.

The total population registered at the last five Censuses is compared below:—

Census.	Total	Male	Female	Variation
1921	5,68,478	3,08,605	2,59,873	
1931	5,91,375	..	..	4.0%
1941	7,12,849	..	..	20.5%
1951	751,249	4,03,871	3,47,378	5.4%
1961	8,90,538	5,30,572	4,59,966	31.70%

There has been steady increase in the population in the district between 1921 and 1961. There was nothing to retard the growth of population. The increase in population during the period 1947-61 is attributed to influx of refugees and colonization of Thal area. Besides the district was not subjected to any famine and epidemics, during the last three decades.

Birth Place.

In the Census Report 1961, Chapter IV the population has been described according to places of birth. Of the total population of the district 9,89,878 the number of persons born in the district is 8,65,509, born in the other districts of West Pakistan is 1,53,636, born in Kashmir is 114, born in the east Pakistan is 6, born in India is 70,352 and born in Muslim countries and other countries is 161. The detailed figures will be found in Volume B.

Population according to age.

Figures relating to age are given in table 10 of Volum "B". The distribution of population of age for both sexes is noted below:—

	1—4	5—9	10—14	15—19	20—24	25—29	30—34	35—39	40—44
Total	1,45,225	1,71,562	87,306	82,668	71,863	80,124	61,752	53,123	45,760
Male	73,804	91,211	50,437	45,037	36,497	40,601	32,365	28,276	24,702
Female	71,419	80,351	36,869	37,631	35,366	39,523	29,387	24,847	21,058

	45—49	50—54	55—59	60 and over
Total	35,482	36,575	18,509	67,644
Male	20,284	20,741	10,860	39,559
Female	15,198	15,834	7,649	28,085

Population of Sex.

The number of the females to 1000 males of the actual population in 1961 was 866 as compared with 842 in 1921 and 860 in 1951. This is the highest since 1891. The numbers recorded in 1891, 1901 and 1911 were 835, 842 per 1000 males respectively. Following table gives the number of females per thousand males in the district and different Tehsils.

Name of locality.	Both Sexes	Males	Females	Females per 1000 in 1961	Females per 1000 in 1951.
Muzaffargarh District ..	9,89,878	5,30,512	4,59,366	866	860
Alipur Tehsil	2,41,029	1,28,413	1,12,616	877	868
Muzaffargarh Tehsil ..	2,90,986	1,55,125	1,35 861	876	852
Kot Adu	1,84,639	98,992	85,647	865	862
Leiah	2,73,224	1,47,982	1,25,242	846	860

System of registration.

In Municipal towns births are registered by Municipal staff and in the villages the Union Councils are doing this work. The Chowkidar is responsible for conveying the information to the Union Council concerned. The Revenue and Police Officers are to verify the entries of the births and deaths maintained by the Union Council. The system of registration of births and deaths is most satisfactory in the present circumstances, even though large number of childern escape registration at the time of their births and deaths because people have not yet learnt the value of registration.

Diseases.

Prevalent disease in the district are malaria fevers, skin, and eye diseases, bronchits, pnemonia and ulcers. They have been discussed in detail in Chapter VI Section-Health.

Infant Mortality.

Number of infant deaths in the 1st year of age is very large and many more infants die in the age of one month and between one month and 6 months probably due to the absence of care of the expectant mother, poor dietory conditions and lack of medical aid. Since bulk of the population is still living in scattered hamlets its is difficult to provide effective medical aid. Insufficiant clothing due to poverty and extreme variation of temperature also contribute to high rate of mortality.

Dis-abled persons.

The number of dis-abled persons in 1961 acording to age groups and nature of disability is given in the table below:—

Age group	Totally blind		Deaf & Dumb		Crippled	
	Male	Female	Male	Female	Male	Female
All ages	1,531	1,588	788	725	1,062	659
0—9	116	78	153	104	176	110
10—10	157	68	166	102	216	114
20—39	213	187	208	146	285	159
40 and over	1,045	1,255	261	173	385	276

At present there is no clinic in the district for teaching deaf dumb and blind.

Religions. **Social Life.**

Islam is the religion of majority.

The majority of the population Jat, Pathan, Arain, Gujar Qasai (Butchers), some of the Baloches, Syeds and Rajputs and Sials, profess Sunni faith.

The present distribution of population on the basis of religious groups is as under:—

Locality.	All religions		Muslims		Caste		Schedule caste		Christian	
	1961	1951	1961	1951	1961	1951	1961	1951	1961	1951
Muzaffargarh District ..	9,89,878	7,51,299	9,86,647	7,51,206	22	..	260	24	,2,949	19
Alipur Tehsil ..	2,41,029	2,11,182	2,41,103	2,11,788	..	..	16	4	5	..
Muzaffargarh Tehsil ..	2,90,986	2,34,856	2,90,553	2,34,850	..	..	..	..	453	6
Kot Adu ..	1,84,634	1,43,009	1,84,297	1,42,989	..	..	132	..	210	13
Leiah ..	2,73,224	1,62,202	2,70,809	1,62,189	22	..	112	..	2,281	..

It will be seen that Christian population has gone up from 19 in 1951 to 2949 in 1961. The increase is on account of settlement of Christian from other district in Thal Project Colony in Leiah Tehsil on Christian quota.

Superstition.

The people of this distriict are Pir minded. Almost every person has a "Pir". Pilgrims to the shrines of Saints are very common.

Ceremonies.

The ceremonies observed by the majority of the population as described in the District Census Report and Old Gazetteer are given below:—

"No particular rites are observed on the birth of a girl. When a boy is born it is customary to bury a knife upright in the ground near the hear of the mat on which the mother lies (women are delivered lying on a mat on the ground, never on a bed). The village khatib is sent for, and in the child's right ear repeats the call to prayer, and in the left Allah-o-Akbar. Before the child is allowed to suck, a small quantity of sugar and pounded main seed-called "ghutti" is placed in its mouth by person of the family who is of a well-known character and disposition. On the first or at latest on the third day after birth the child is named. Between the seventh and twenty-first days one or two goats are slaughtered The head, feet, entrails and bones are packed into the skin and burried. The flesh is cooked and divided among relations and the poor. The name of this ceremony is "akika."

Hair cutting.

"The next ceremony in a child's life is the solemn cutting of its hair. A child's first hair is called jhand, and the act of cutting the hair off is jhand lahawan. Every child has its jhand cut off at the door of the village mosque. This is called "vadian di jhand lahawan" to cutt off the hair according to ancestral custom. This ceremony is an occasion for a gathering of friends, and for a feast. But, before the child was born the parents have made vows to more than one saint to cut of the child's hair at his shrine. Successive growths of the child's hair are accordingly cut off at the shrine of each saint to whom the parents have vowed. Such cutting of the hair is called "manaut di jhand lahawan."

Circumcision

"Circumcision of the boys takes place between the ages of three months to 10 years. Among the well-to-do a good deal of money is squandared at the ceremony. It is called the "small marriage". The operator is always a pirahin—the caste which makes out a living from this trade. This circumcision ceremony is known as Tahur, which means "purifying."

Moulding of heads.

"There is a peculiar custom of moulding the heads of new born children by means of an earthen-wate cup so as to produce a broad open forehead. It is considered the first duty of a mother to shape the head of her child. In addition to pressing

the forehead with an earthen cup, mother keeps on pressing it with the palm of her hand, whenever she is suckling the baby. The nose of the infant is also pulled and moulded. The mother is also expected to shape the limbs and body of the infant. This is done by a process called "bandhna." In this manner the child is supposed to be made handsome."

Death.

"The main ceremony following death is the Qulkhawani, which takes place on the 3rd day of the death. All relatives and friends of the deceased collect and join in the prayers. Salted rice is cooked and served to the persons attending this ceremony who usually contribute Rs. 1 or 2/- according to their financial status on this occasion."

Betrothals and Marriages.

"Betrothal is usually a contract between the parents or guardians of the boys and girls to be married. A majority of the marriages in this district are on the principle of give and take (Watta-Satta). The boy's father or guardian sends some relative or friend to the girl's father or guardian to make the match. The boy's father and relatives then go to the house of the girl and take some suits of clothes and some ornaments (if possible) for the girl with some sweets and dried fruit. The clothes and ornaments are made over to the girl who wears them. The sweets are distributed and a formal blessing (doa-kher) is offered. In token of acceptance of the request, the girl's father or guardian gives Lungi, Reta (red piece of cloth) and a ring for the boy and some of the sweets are returned. These sweets are distributed by the boy's relatives when they get back to their home. The betrothal is then complete. Among the Jats the boy also accompanies the party to the girl's house.

The contract is revokable any time before the Nikah. If the boys's side refuses to abide by the contract it loses the clothes and ornaments presented to the girl but is not liable to pay some damages. If the girl's side revokes the contract it must return the clothes and ornaments received by the girl as well as pay some damages. In respectable families the contract of betrothal is sometimes made merely by a massage from the boy's father or guardian and an acceptance from that of the girl's. No formalities are observed.

The only binding ceremony which completes the marriage is the Nikah. The bride is dressed in clothes presented by the bridegroom's guardian and the bridegroom in clothes presented by the bride's guardian. Til, Shakhar and Chhoaras (dry dates) are then distributed. The ceremonies which are not connected with the religious rites are known as Sagan. A few days before the marriage plaits of the bride's hair are solemnly oppened by most honoured women of the both families. Her body is rubbed with Chikun, a mixture of turmeric, barley flour and sweet oil, as a deep cleanser to increase her personal beauty. The bride is not allowed to go out unless she is accompanied by a female friend. Similarly, for two days before the wedding and during the wedding the bridegroom is armed with a knife and is always accompained by his best friend or a nephew. This companion is called "Shabala." On the day fixed for marriage the bridegroom's party called jang proceeds to the bride's house. Women in large numbers and in their best attire accompany the marriage party. If the distance between the bride's and the bridgroom's villages is appreciable the women are carried on camels, fitted with kachawas Mirasis or bards lead these camels beating their drums.

When the barat or janj reaches the house of the bride the bridegroom accompained by his Shabala enters the house of the bride. He has to break with his foot an inverted chhuni or lia of a pitcher. If he fails to break this chhuni he is laughed at by the women and girls present there. The breaking of this chhuni represents the demolition of the last defence of the bride's party. The bridegroom then lifts the bride from the seat on which she is sitting to another. She then presents her closed fist to him in which is a lump of gur. The bridegroom has to open his closed fist. After this ceremony of sirmel or joining of heads, is enacted and this represents the consummation of the marriage. This is performed by the women of the bridegroom's family holding the heads of the bride and bridegroom together.

The ornaments usually given to the bride at the time of the marriage are silver kangans or churis, silver earrings, gold popa or kanda (worn on left side or the nose) and a ring or mundri About two or three pairs of clothes are also given to her along with a pair of shoes. The parents of the bride give her a quilt talai (both of red coloured khaddar) a pillow, two or three pairs of clothes and two or three pieces of utensils.

The marriage party is entertained with sweetened rice out of the money provided by the bridegroom's party. Marriage party usually reaches the bride's home before noon and comes back with the bride before dark. The bride is carried on a camel fitted with a kachawa. The bride stays for a week in her father in-law's house before she returns to her parents when the bridegroom accompanies her. She then leaves with her husband in two or three days time for her permanent abode."

Family laws and Marriage.

Till recently the usual age of the girl for marriage used to be between 13 and 15 years and for bridegroom from 16 to 20 years. There were, however, certain natural customary restrictions for the inter-marriages even though Islam did not place such limitations like caste and creeds. Normally a marriage of girl could only take place when she attained the age of puberty. There are, however, occasional digressions from this injunction due to custom of watta child marriages. Recently Family Laws Ordinance has laid down the minimum age limit of 16 years for girls and 18 years for boys. Restriction has also been imposed on polygamy. The second wife cannot be taken without the consent of the first wife. Polygamy was a common practice in this district and its full implications have been discussed in Chapter V Section Criminology. Similarly the restriction has been imposed on divorce. The detailed procedure has been laid down in the Family Law Ordinance for second marriage and divorce.

Inheritance.

The inheritance by custom has been eliminated and now in general it is according to Shariat Law.

Language.

"The language spoken by the bulk of the population is called by them Jatki, which is also spoken in Multan, Bahawalpur, Dera Ghazi Khan and the south of Mianwali and Jhang for the sake of convenience we group it with Punjabi. It is a dialect of 95.32% of the people. Another major dialect after independence is Urdu which is spoken by 4.48%. It belongs to the southern group of Lahnda. There is an interesting account of it in Volume VIII part I, pages, 233-240 and 310-310 of the "Linguistic Survey of India". In the Bilochi-speaking parts of Dera Ghazi Khan it is known as Jagdali. It has been named Multani by Europeans. It resembles Punjabi and Sindhi, but differs from both in many particulars. The case-edings agree party with Sindhi and partly with Punjabi, while some are peculiar to it. It resembles Sindhi-Pashto and Persian by using an intricate system of pronominal suffixes from which the sister dialects of Pakistan are happily free. The inflections of the verb are peculiar and differ both from Sindhi and Punjabi. Multani resembles Sindhi in having a passive voice instead of being reduced to the clumsy compound with jana, to go. Marindan, I am being beaten, is

much handier than "main mara jata hun." It contains many Sindhi and Punjabi words and has a copious vocabulary of its own. It has an abdundance of grammatical forms which show that it is in an inferior state of development. Like all languages spoken by a rude people, Multani is extremely rich in concrete, and absolutely without abstract, words. Mr. O'Brien published a "Multani Glossary" which is a perfect mine of proverbial and other folk-lore. This book has been re-edited and rearranged by Mr. J. Wilson, C.S.I. and Pandit Hari Kishan Kaul in a form more useful for reference and grammer of the dialect, as spoken in Multan and Muzaffargarh, written by Mr. Wilson has been added to it. The dialect of the Thal differs somewhat but not to a material extent from that of the Indus valley."

After the resettlement of refugees from non-Punjabi speaking parts of India and colonists from other parts of old Punjab, the local dialect has undergone a considerable modification. More Urdu words have crept in it. In colloquil the construction of language like the sentence سائیں میں موڑے تے چادر ڈال کر جانداسی is very common. The blending of Urdu, Punjabi and Multani will give birth to more refined Multani language.

Literature. "There is a large number of unwritten songs, proverbs, riddles and aphorisms which throw light on the national customs, and thought. Whenever Jats collect they spend a great part of the night in singing dohras or coulets. To be able to quote an appropriate proverb will send away a Jat laughing, and make him forget his imagined troubles. A Volume of Multani stories was published in 1917 by Mr. F.W. Skemp., I.C.S. (Now Mr. Justice Skemp)."

Clans and Tribes. The caste as an institution is not recognized by Islam; all followers being treated as equal from a religious point of view. The word "Zat" which is equivalent of caste, is however, used to denote the clan; and within a clan strong social feelings and prejudices are known to exist. The institution of clan was an important subject of study prior to independence.

The main tribes of the district which have existed prior to independence are the Jat, Balochi Pathan, Syed and Qureshi. After indepedence however Rajput from Rohtak and Karnal; Arain from Ambala and Jalindhar; Qureshi from Patiala State and Gurgawan, Taga muslims from Rohtak district, Pathan from Rohtak and Ambala; Dogar from Patiala State, Gojar from Patiala and Ambala; Meo from Gurgawan; Syed from Nepal and Delhi; Butchers from Rohtak; Karnal; Gurgawan; Faqir from Rohtk, Karnal and Baloch from Rohtak and Gurgawan settled in this district.

It is difficult to give exact strength of each tribe. Majority of the population consists of Jats and Rajputs strictly followed by Baloches in their strength and Arains. Other castes namely Pathans, Syed, Qureshis and Butchers are small in number. The Jats are spread all over the district. The Rajputs are primarily settled in Alipur and Muzffargarh Tehsils. The refugee Rajputs have settled more Leiah and Kot Adu Tehsils. The Baloches are in great numbers in Alipur. There is a group of Syed villages in Alipur Tehsil and there are a number of other settlements in other Tehsils. The Pathan have strong settlements around Muzaffargarh and Kot Adu towns. The Qureshis have also few villages in each Tehsil. **Strength of Tribes.**

The word Jat has been used in different derivative sense. According to Mr. O'Brien the word Jat includes that Congeries of Muhammadan tribes which are not Syeds, Biloches, Pathans or Qureshis. This means it includes Rajput also. **Jat.**

Jat tribes are exceedingly numerous. They generally trace their origion to a common stock. There are different theories about their origin. Colonel Tod believes that they belong to the same stock as that of Rajputs and are Indo-Scythian. Mr. Alexander Cunningham however does not agree with him and identifies the Jats with the "Zathi" of Strabo and the Jatti of Pliny and Ptolemy and maintains that they entered Punjab from their homes on the Oxus shortly after the Meds who were also Indo-Scythains and who moved into the Puniab about a century before Christ. Cunningham holds that the Rajput belong to the original Aryan stock and the Jats to a later wave of immigrants from North-west, probably of Scythian race. The earliest reference on record is found when Muhammad-bin-Qasim after his conquest is reported to have maintained the regulations passed by Brahman Usurper of Sind, humiliating the Jats and Lohanas. Muhammal-bin-Qasim declared that the Jats resemble the savages of Persia and the mountains. Another reference is found in the writting of Ibn Khurdadba that the route from Kirman to Munsura passes through the country of Jats. A little later another claim was assigned in the Book Tuhfat-ul-Kiram according to which Jats and Biloches who are placed under the common descent from Muhammad son of Harun Governor of Makran who was himself descendant of Amir Hamza, an Arab, by a Fairy. In short it is difficult to ascribe one origin of the Jats of this district like the Jats of other disricts. Afghan origin is asserted by the Langah; Arab origin is claimed by the Tahim and Lilla; Brahman descent is alleged by the Golias and Langrial, Jat descent is admitted by the Bhullar. He and Man; he Sipra and the Bhangu: who say that they came from Nepal, Waraich and the No-1 claim as Rajput and Bal, Saroha, Mahal and Sumra. Joyas, Bhattis

Dahas, Bhuttas, Saho, Sindhu, Janglas and Kheras partly ascribe their origin to Rajputs and partly to Jats.

Ethnologically Jat is the peculiar and most prominent product of the plains of the five rivers. In point of numbers he surpasses other tribes. Economically he is the husbandman, the peasant, and the revenue payer. The best known Jat tribes in the district; on the right bank of Chenab are Khera Sials who called themselves Rajputs with their branch the Sarbhanas, Targarh, Tahim, the Chhajra. In the Leiah Tehsil are the Lohanch and the Sumras, in Kot Adu Tehsil are Prehars, Gorahas, Hingras, Makwals and Patals, in the centre of the district are Matlas, Makwals, Buhttas, and near Kinjhar the Dhanotar and Jangla tribes abound. On the bank of Indus and in the South of the district, the Baloches become more numerous and the majority of the Jats seems to be of Sindhi origin a title of Jam. Of these Sindhi Jats Dammar, Unnar, and Sarki are the known tribes. Mr. Denzil Ibbetson describes the "Jat" character in the following words:—

"He is usually content to cultivate his fields and pay his revenue in peace and quietness if people will let him do so; though when he does go wrong he "takes to anything from gambling to murder, with perhaps a preference for stealing other people's wives and cattle." As usual the proverbial wisdom of the villages describes him very fairly, though perhaps somewhat too severely: "The soil fodder, clothes, hemp, grass fibre, and silk, these six are best beaten; and the seventh is the Jat." A Jat, a Bhat, a caterpillar, and a widow woman; these four are best hungry. If they eat their full they do harm." The Jat, like a wound, is better when bound." In agriculture the Jat is predominent. The market-gardening castes, the Arain, the Mali, the Saini, are perhaps more skilful cultivators on a small scale; but they cannot rival the Jat as landowners and yeoman cultivators. The Jat calls himself Zamindar or "husbandman" as often as Jat, and his women and children alike work with him in the fields."

Rajputs. The Rajputs probably ranks equal to or more than the Balochis in number. The popular theory of their origin is well-known in the history and need not be repeated here. The local Rajput tribes were settled in this district during the ascendancy of Summas. The other Rajput tribes who have setteld in this district mainly hail from Rohtak, Karnal and Gurdaspur. It however, seems probable that a considerable inter-breeding and fusion went on between Rajputs and other tribes particularly in this district which was a border district., and some of the families which were by origin Rajputs or which were by origin Jats or which were aboriginal mixed into Rajputs and are identifiable as such after fusion. This is why

the tribes like Sumras, Prehars, Gorahas, Hinjras, Lohanch claim their descent from Rajput stock.

The Rajputs who have migrated from Rohtak belong to Panwar groups of Rajputs. In the first war of independence they played an important part against the Britishers. They are certainly fakeless farmers generally prefering to let their lands rather than till them in person. In truth agriculture is only second string to their bow, military service being the first. Major Neel was shot dead in 1887 by one of the person belonging to this tribe of Rohtak district. The refugees of Karnal district belong to the Lunar race and are grouped into sub caste of Tunwars. They are fine brave men and retain the feudal instinct more strongly than any other caste.

Biloches.

The Biloches have commonly been recognized as the representatives of the Sametic race. Mr. Pottinger and Khanikoff claimed for the Baloch race a Turkoman origin and Sir T. Holdich and others an Arab desent. Mr. Bellew assigned them Rajput descent on very inadequate philological grounds, while Burton, Lassen and others maintain that they are of Iranian race. This last view is supported by Mr. Longworth Dames who shows that the Baloch came into this district from Mekran on Pak-Iranian border. Mir Jalal Khan son of Jiand was the ruler of all the Balochs. He left four sons, Rind, Lashari, Hot and Korai from whom descended the Rind, Lashari. Hot and Korai tribes; and a son-in-law Murad from whom are descended the Jatoi or the children of Jate, Jalal Khan's daughter.

Tradition avers that Jalal Khan had appointed Rind to the Phagh or turban of chiefship, but that Hot refused to join him in creating memorial canopy to their father. It is stated that each performed the ceremony separately. Watever may be the tradition it appears that the five principal clans formed into a single community under some well-known leaders, each of which became known by some nick-name or epithet, such as Rind ' Cheat", Hot "Warrior", Lashari, "Men of Lashar" and later, Buledhi "men of Boleda".

The present principal Baloch tribes are the Dodais and Lasharis. The great Mirrani tribe which for 200 years gave chiefs to Dera Ghazi Khan, was also of Dodai origin. It is probable that Sumras and Summas were both tribes of Baloch origin. It is believed that Lashari and Jaskani clan established a principality at Menkara during the days of Akbar who lead many expenditions against the Baloches. Amongst Baloches of this district, the earliest who came to this place from barren hills of Balochistan were the Chandias who settled in Chandoca tract along the Indus. They are numerous in both Muzaffargarh and Dera Ghazi Khan districts.

The Biloches differ little from the Jats, with whom they have freely intermarried and mixed, and with whom they life. The tribes are numerous, but have no arrangement into Tumans and Phallis like the Biloches on the frontier. No tribe is pre-eminent on account of descent. The only common bond is the name Biloch. In the south of the district the distinctive Biloch dress of a smock-frock reaching to the heels and long curly hair may occasionally be seen, especially among the Drishaks; but as a rule, a Biloch cannot be distinguished from a Jat. In this district they cannot even boast that they excel in the standard Biloch virtues of hospitality. Certain tribes, as the Surhanis, Ghazlanis, Gopangs the Chandias cannot be easily considered models of good conduct. None understands the Biloch language. Biloches are found generaly throughout the district, but are more numerous on the bank of the Indus and in the south. Their Chief tribes are the Chandias. Pitafi are also found in great numbers. Pitafi belongs to the same stock as Chandias and the name denotes the area where they settled. Pitafi literally means southerners.

Arains. The Arains have primarily settled in this district after partition and come from Jalundhar district and other districts of central Punjab. Most of them have been introduced by Thal Development Authority as colonizers.

Like Jats their origin is also very disputed. Originally the term was applicable to gardners. Their claim as a separate race appears to be of a very recent origin. They are grouped into two Sub Divisions namely Sarsa Arains *i.e.* hailing from Sarsa (District Hissar) and Multani Arains hailing from Multan. The former claim their desent from Rajputs while the later assert their Arab origin who came to India from "Masqat" alongwith Muhammad-bin-Qasim and settled at Uch. It is said that Arain originally came from lower Indus and spread up in the land of 5 rivers and that many of them in early stage of their history moved upto the Ghaghar (perhaps then a permanent river flowing into the Indus) and there gained a position of some importance.

Their claim to Rajput and Arab ancestry is doubtful, as there appears to be nothing in common in between the chief representative tribes of Rajput and Arab tribes on the one hand and Arains on the other. The Arab is essentially a Nomad and has little to do with agriculture. We have got the traces of Arab races in Syeds, Qureshis and Baloches, all of them are poor husbandman while Arains are good agriculturists. As cultivator they are more hard working than Jats but they do not manage large estate like them. They have often been compared by certain English Authors with Lodhas, Kachhi and Kirmmis.

They like Jats seem to be the product of Punjab plains who have got no remnants of their own either in Arabia or India.

Mostly the residents are Multani Pathans introduced during the ascendancy of Multan Governors as Muslim colonists. They have no particular Pathan code of conduct and have mixed in other indigenous tribes. Pathans.

The Gujars are one of the major tribes of the district. They are generally identified with the Khushans of Tuchi tribes of Eastern Tatars. It is said that one of the descendants of little Tuchi tribe conquered Punjab and established ascendancy throughout the Province. The names like Gujranwala, Gujrat (Gujrat Bombay) Gujar Khan (within Rawalpindi district) and many other cities lend support to their ascendancy in Punjab. These Tochari or Kushans are the Kaspeira of Petolmy and in middle of the second century of the era they settled in Multan. Multan probably was called after the settlement of the tribes as the original name was Kasyapapora, which was changed into Hamsapura thereafter into Bagapura then into Sumbhapura and then into Mulasthana which is the father of the present Multan. They are purely pastoraly tribe and almost a nomadic race. Cultivation has been like many other Indo-Scythian races only their weak point. Although there has been no established affinity between Jats, Gujars and Ahirs because of their different ethnic stock but it is considered possible that the Jats and Baloches in this district were the camel graziers and husbandmen, Gujar the cow-herds of the hills and the Ahirs the cow-herds of the plains. If this be so it is difficult to distinguish between the three Gujar clans appear to be numerous. Gujars.

Meos claim themselves to be Rajputs but their distribution into "Pal" does not lend support to this view. Their reference to Mini and Minas lead Mr. Major Powlett to believe that the Mini and Minas are connected and both probably are the representatives of earlier non-Aryan inhabitant of the country. Pal is the common term given to the Sub Division of the Moes as well the Minas. Meos.

They have been introduced in this district after partition chiefly from Ulwar State and Gurgawan district. They are inferior agriculturists. Most of the work is done by their women folk, whereas men remain indolent.

The Syeds are the representative of Samitic race. They are chiefly Bokhari and Gilanis. They are the keepers of the Shrines and other religious institutions. They are held in great esteem. Syeds

They are numerically small and have considerable influence in the district because of their riches. They appear to have settled Qureshis.

in this district during the rise of the four Governments. They were respected even during the days of Diwan Sawan Mal.

Jhabels, Kihals and Mors.

Of the other tribes the only ones worth mentioning are the Jhabels, Kihals, Mors and Kutanas. The Jhabels came originaly from Sind; they cannot tell how long ago, but it is remarkable that of all the tribes of the district they alone speak pure Sindhi. They are also addressed by the honorific title of Jam. They live mainly by fishing, gathering pabbans and making baskets, but many have taken to agriculture. They are reckoned good Muslims. The Kihals and Mors are said to be one tribe. In the north of the district they are called Mor, they eat crocodiles and tortoises, and Muslim do not associate with them. In the south they do not eat these reptiles, and are considered good Muslims. Kihals and Mores live by fishing, but some have taken to agriculture. They as well as the Jhabels are found of cultivating samuka. These tribes live separately in villages near the rivers.

Kutanas.

The Kutanas are said to be low-class convert to Islam. The derivation of the name Kutana is not known. In the vernacular it is spelt Kurtana and pronounced Kutana. They live by cutting reeds and grass, and by making thatched roofs, ropes, reed huts and other reed work.

Shrines.

The people are generally Pir minded. The details of the Shrines and the fairs have been described in Chapter VII Section I Administration of Aukaf Property.

General Character of the people.

It is very difficult to assess the general characteristic of the people because of the introduction of different tribes as a result of colonization of Thal Project Colony and Rehabilitation of refugees from different district. A new synthesis of the fasion of various trends will take a generation or two.

People of the District are generaly docile and easily manageable. The association of the local and settlers have improved the state of affiairs. The offences of cheating and theft have come down. They are co-operative when hit with calamity, extremely submissive and silent slow workers. Comparatively speaking they are hospitable.

There is however, a society in the process of formation after the introduction of canals. It is considered that after due process of fusion and assimilation the present values of life are bound to charge.

Food, Dresses and dwelling.

The details have been given in Chapter II Pressure of population.

Amusements.

Most of the amusements of the people such as going to fairs at shrines, marriages, funerals and visits of condolence have been mentioned at proper places. It is common amusement to race bullocks at wells. A pair of bullocks is yoked to the wheel and driven round as fast as possible for a short time and a drum is beaten to scare them; then another pair, and so on till the competitors have all had a turn. The by-standers then decide which pair is the winner. Very often bullocks race singly. The owner of the winning pair receives no reward, but is expected to give food or sweetmeats to the company. The competition interests the Jats intensely. The favourite day for bullock-racing is the first of Visakh (April-May), hence a bullock-race is called Visakhi at whatever time of the year it may occur. Wrestling, here called Malhan, goes on at every large meeting. Jhummir is a circular dance which Jats dance at weddings and wherever they happen to collect in large numbers. They move round in a circle, dancing and clapping their hands in time. Three kinds of Jhummir are well known: lammochar Jhummir, or southern Jhummir; traitari Jhummir, *i.e.* Jhummir with three claps of the hand, and a pause, which means four times; tikhi Jhummir or quick-time Jhummir. A young man who cannot dance a Jhummir is very lightly esteemed. The dance is Balochi in its origin, and camel-drivers are experts at it.

Horse-racing (hath) camel dancing and camel fighting, is also indulged in at various festivals. Fishing is a sport on the banks of the rivers. During the quail season large number of quails are netted. The drive is considered a great sport. A few people shoot with guns and rifles, but many keep dogs for pig-hunting, which is a favourite sport, particularly in the riverian tracts. People turn out by hundred and take a number of munj rope nets which are fixed at one end of the jungle, the people driving with dogs from the opposite end. Some of the pigs are netted, others are shot and some are caught

by the dogs. It is a plucky performance. Birds are shot with bows and arrows. Blunt arrows (called ghaz) with heavy tops are used. Camel wrestling is also popular, and horses are made to dance near Rangpur.

Boys' games are:—

Gili danda, or tip-cat;

Danda juli, hopscotch;

Chidda, marbles;

Kaudi or Kabaddi, a sort of prisoner's base; and Dodha, base.

Boys, play volley ball, football etc. in Schools. The district board holds atheletic meetings at fairs for encouraging atheletics and rural games.

Music. The people do not have well developed music taste, yet common people are fond of it in their own way. The common people usually sing dorhas in a shrill voice and monotonous tune. The next advanced stage is singing kafis of Khawaja Ghulam Farid of Chacharan. There are also a few people who know something of classical music. The mirasis generally sing well. In the towns dancing girls keep up a low class of music, and they are also requisitioned at marriages, in villages. Drums and pipes are always in demand at festivals and weddings. Women always sing in company at marriages and other festive occasions.

CHAPTER II

SECTION 'A'—*History of Land tenure and Land Reform.*

Land tenure simply means the rights and obligations of a person or a group by which property is held. Such rights therein or obligations thereto arise as a consequence of the utilization of the land. The idea of ownership in the form of rights and obligations has evolved over long period under the impact of geographical, economical, social and political conditions and the circumstances of the community. It has been observed by Badon Powel that the right to land grows out of two ideas: one being that a special claim arises to any object or to a plot of land by virtue of the labour and skill extended on making it useful or profitable; the other, that a claim arises from conquest or superior rights. The feeling of right further developed when each holding was the result not merely of a random choice but of some regular procedure of allotment of the class chief. It therefore, follows that property in land passed through three stages. Firstly it was held by the tribe and clans and was regarded as a common property of the whole body. The next stage was reached when though the land was held by tribe or clan but its exchange and redistribution was abandoned because of the improvement carried out by a particular family which retained it permanently. Finally the families broke up and individual ownership was the third and eventual outcome. **Land tenure**

Although, general history of the land tenure in this district is not much different from other districts, but the study of land tenure in this district is of special interest; firstly because it has grown from simpler to complex in the known period of history; secondly the effect of different factors has been more marked and distinct on account of their recent inter-action. Whether whom state should recognize as owner and on what term, what should be the system of cultivation, self or through tenants; determines the structural basis of country's economy. **Evolution of land tenure in this District.**

Of the early history and art of agriculture little is known about this district. The tribes who are found today were mostly Nomadic and agriculture was a second string to their bow. Nevertheless agriculture must have started in central irrigated tract long ago. As such the appropriation of ownership rights in land started in the distinct past. History tells us the existence of Hindu chiefs, assignees and peasantry living in this district. The land however was not alienable commodity in the popular sense of today. Keeping in view the nature of ownership rights and the tenures in existence in this district the period can be conveniently divided into three phases.

FIRST PHASE FROM 510 A.D. TO 1200 A.D.

The first phase though started much earlier but became more marked from the settlement of Tocharis (Gujars) followed by Arabs and culminated into Rajput settlements. Roughly it covers a period from 510 A.D. to 1200 A.D. Tocharis were pastoral people. It seems probable that they did not adopt agriculture as it was of insignificant value for them. The exaction of tax, however, must have lead them to recognize the users but without the sanctity of being owners. The advent of Arabs did not alter the conditions materially. The main Arab tribes which settled in this district were also pastoral. Conceptually they must have recognized the users as owners to a limited extent for the purpose of rent. In fact Muhammad-bin-Qasim on conquest did not disturb the existing system. Since they were pastoral people it is certain that Arabs for grazing their herds must have occupied some suitable Rakhs at the expense of earlier tribes. The levy of grazing fee as Tirni seems to owe its revival to Arab supremacy, Nevertheless, in this stage, land was in abundance. One tribe subject to its strength for possession could occupy as much land as possible for their herds. The transplanting of tribes *i.e.* Tocharis displaced by Arabs who in turn were up-rooted by Sumras and Summas and Rajput went on incessantly and did not effect the pattern of land tenure as the considerations for security rather than suitability for agriculture were more important. It is generally believed that the individual/tribes hardly thought of appropriating the soil as their property in the present sense. The Motion of property in the soil sprang up to some degree which was limited to the apportionment of pastures for the herds of the tribes. The idea that a single individual could claim a part of the soil exclusively as alienable was still unknown.

SECOND PHASE FROM 1200 A.D. TO THE RISE OF DIWAN SAWAN MAL *i.e.* 1812

This period covers the entire period of Sultanate. Although the art of agriculture had sufficiently progressed but the idea of property as belonging to one individual did not find favour till the advent of Sultanate. The concept of mine and thine however, had taken shape long ago probably under the direct impact of a system of granting the produce of defined area of land in return of services to the state. The land revenue was assessed on the users of the land either directly or through the agent appointed by the state. These agents were neither hereditary nor they enjoyed any right as owners, excepting they managed to appropriate the land when Central Authority weakened. This period is characterised with the growth of land tenure from simpler to complex. Simple Bhai-chara villages evolved due to tribal division of the areas were infested with state grantees. Number of Zamindari and Patidari villages came into existence. This took place due to the following reasons :—

1. The system of "Kankoot" and measurement created a gulf between the cultivators and the state and gave rise to a class of middlemen either as tax farmers or agents who later on usurped the right of ownership.

2. The class of hereditary assignees and landed aristocracy was created by the muslim rulers. Hussain Khan was granted Rangpur area in Jagir by Aurangzeb; Muzaffar Khan was granted a Jagir by Tamur Shah who in turn appointed Pathans as assignees and introduced them as feudal lords in this district; Baloches were given grant along the river Indus by Malik Sohrab; Jaskanis were granted Jagir by Ahmad Shah, Hafiz Dost Muhammad was granted Jagir by Ranjit Singh and Sungranis were granted Munda-Shergarh territory by the Nawabs of Mankera. Thus Jagirs were granted by Emperor of Delhi, by rulers of Kabal and the rulers of Sind. Jagirdars were absentee land-lords and had "Kakims" as their Kardars. These Jagirdars and Kakims became owners in the disturbed state following the collapse of Mughal Government.

3. The nobles were granted land as Aqta-dars who subsequently claimed themselves as hereditary landlords. Barni states that these assignees and Aqta-dars came to be regarded as hereditary owners.

4. Un-inhabited areas were assigned to the exploiters who undertook to populate them. Such assignees were charged nominal revenue and became owners thereafter.

5. Pious grants as "MILK" (literally meant lands granted in perpetuity) given to Makhdums, Qureshis and Syeds became the property of the grantees and were inherited by the forefathers of the present heirs. In certain cases land granted as "TASWIGH", life interest of the grantee was also appropriated as private property.

6. The peasants were recognized as owners. Land paying Kharaj and Usher was regarded the property of the tax payers. Who were allowed to sell such land according to the edicts of Feroze Shah Tuglaq. The right of purchase and sale was thus recognized which enabled the tax farmers to appropriate large estates, particularly in bad years.

7. In this period Rais were came to be recognized as Zamindars and Ranahs as independent chieftans. Muqaddams and Khuts enjoyed greater concessions in this period.

8. Mauryan administration was essentially a confederation. The chiefs were always held real rulers. The Sultan accordingly became a mythical figure particularly to the residents of this district which enabled the chief's to appropriate rights in lands and when they ceased to exist as independent lords they became the land-lords. This is exactly what happened in case of Nawabs of Sitpur. Nawabs of Mankera, Nawabs of Kot Adu and Nawabs of Multan.

9. The chiefs, like Sultan, held private property other than the state property. Like-wise men in Authority held similar private properties. Some holy persons were allowed to dig canals and were given similar rights in the areas developed and irrigated by them.

All these factors and rise of four local Government lead to the establishment of different classes of assignees, land-lords, peasants and the tenants thereby disturbing normal village communities. Quasi political-cum-agricultural basis determined the pattern of land tenure. The system was not yet tested as means of exacting tax except a proportionate share of the state.

THIRD PHASE FROM THE RISE OF DIWAN SAWAN MAL TODATE

Had the simple mechanism of growth of land tenure system continued, the system would have been Bhai-chara in real sense, disturbance in evolution through land revenue policies created choas in village tenure on account of the rise of a class of tax farmers, assignees and feudal lords. The settlements sometimes with the individual sometimes with the agents further added to the complexity of the tenure. The district was yet to see another class of colonizers under Diwan Sawan Mal who forced the Muslims landed aristocracy either to flee or to accept Labana Sikhs as colonists of special status. He crippled the powers of the muslim land-lords so much so they came to be recognized as Ala-Malik and the real ownership passed in the hands of the colonists known as Adna-Malik. The land revenue was assessed so high that it reduced the purchasing powers of the muslim peasantry and they were obliged to sell the land to Multani-Hindu businessmen.

The British period from 1857 to 1947.

The Britishers based their land revenue policy on the following pre-conceived notions:—

(a) Land revenue is the first concern of the state as it gives sure and easy income and should be ensured. For ensuring the land revenue group settlements with joint responsibility was considered the best method.

As described above during the Sultanate period the development of agriculture rather than the land revenue was a deter-

mining factor. If a tenant failed to cultivate the land, state managed to get it cultivated through agents and after deducting the expenditure and the state's shares profit was paid to the owner. The settlement with the group was always avoided because it was held a retrogressive tax which enabled the influential chief Muqaddams, Headmen and agents to escape payment by an unjust distribution. During British period the land revenue demands were determined so high that it had to be revised three times upto the regular settlement. Due to their anxiety to ensure land revenue old assignees, agents, exploiters, headmen, Hindu merchants and colonists as owners were recognized without going into the details of their hereditary rights. The peasants were recognized as owner proprietors where-ever the claim was not advanced by the above mentioned categories of the land-lords. The tillers of the soil were recognized either as tenant-at-will or occupancy tenants. The labourers employed for clearance of land by private arrangements as *'Tarudadkars"*, were recognized as *Adlapi, Mundhimar* and *Bootamar* tenants. A class of fresh assignees as *Inamdars* was also introduced. This class later on operated as speculators in the entire district who purchased rights in Shamlat land from illiterate peasants. Large tracts of land used as pastures were notified as state land, which were later on converted to be shamlat after the settlement of 1917.

The effect of three summary settlements was unfortunate on the landed class of the district. The cultivators were forced to be tenant-at-will rather than occupancy tenants for fear of paying exacting land revenue. This was however, to some extent remedied in the first regular settlement. Tenancy Act of 1887 was introduced on the eve of independence, village community was nothing but a dis-integrated congregation of different classes with vested interest mostly directed against each other. The only binding force was the liability for payment of land revenue. The real Bhai-chara become unknown.

From 1947 to date, period of Reforms.

That Development Authority became owner of 4 lacs of acres from 1947 to date period of Reforms of land roughly by acquiring 3/4th of land from old proprietors. The area under acquisition was however, reduced later and all areas which were shown as cultivated in the "Crop Inspection Register" of 1951 and those shown as Adna-Milkiat were restored to the local owners. A formula for acquisition was also fixed. The owners in the meantime sold out unauthorisedly to speculators who now constitute a major class of land-holders. In some cases the owners left their un-economical lands and occupied better lands of the state or the Authority. Like-wise refugee settlers occupied lands which had been acquired by the Authority. The Authority distributed the acquired land in the lots of 15 acres and 25 acres each to the peasant proprietors from different districts.

The rest of the area was auctioned. Tubewell grants of 6 squares each was also given to the allottees.

It will be seen that Tenancy Act of 1887 gave very little protection to the tenants. After independence it was decided to reduce disparity between land-lords and tenants either by guaranteeing greater protection to the tenants or by limiting the optimum size of land. The "Punjab Tenancy Act 1950" was passed with a view to abolish various cesses called "Haboob" which the tenants had to pay to their land-lords in addition to rent. This was followed by "Punjab Protection and Restoration of Tenancy Act 1950". On the recommendations of the "Muslim League Aggrarian Reform Committee", Punjab Tenancy Amendment Act 1952 was passed which *inter-alia* provided the conversion of occupancy tenants into owners of the land they cultivated, fixed the land-lord's share at 40% of the gross produce and regulated Khud-Kasht (owner cultivated area which could be held by the land-lord). These reforms however, proved to be too radical in respect of determining the share between the land-lords and the tenants and hence was modified later. The Government which came into power following Martial Law in the year 1958 promulgated M.L. Regulation No. 64 following the recommendations given by Land Reform Commission. This Regulation inter-alia contained the following salient features:—

1. No land-lord could retain more than 500 acres of canal irrigated land or an area of more than 36000 produce index units if not irrigated by canals. If the area was partly irrigated by canals, and rest of it unirrigated even then the limit of 36000 produce index units was to be operative according to the prescribed scale.

2. The land owners were given first option to select area for themselves which was to be retained by them under the Land Reforms. The excess area was to be surrendered, which became the property of the Land Commission for its further disposal.

3. If the area surrendered by the Land owners was held by tenants then they became the new land owners of such area after payment of the price @ Rs. 8/- per produce index. The price was to be paid in half yearly instalments upto 25 years. Each tenant was to be given 12½ acres of land equal to subsistence holding.

4. An area of 50 acres in the old canal irrigated colonies of the former Punjab Province and Bahawalpur State was declared to be an economic holding and an area of 12½ acres as subsistence holding.

5. These holdings could not be reduced below the limit prescribed. If a person having an area of 12½ acres or less wishes to dispose of any part thereof; he could not do it unless the entire property is alienated to the resident of the same estate. Similarly he cannot reduce an economic holding below the limit of 50 acres.

6. The restriction in Clause V above also operated in case of partitioning of joint Khata under the provisions of M.L. Regulations, 64, a joint Khata cannot be partitioned, if by doing so, the holdings become uneconomic.

7. The land owners who surrendered their excess holdings were allowed compensation @ Rs. 8/- per produce index unit in the form of bonds redeemable after 25 years with interest. In certain cases in which the amount involved was not sizable, the compensation was paid in cash.

8. Orchards and pedigree Livestock farms were out of the scope of the Land Reforms and the owners were allowed to retain them after making necessary declaration.

9. The surrendered lands which were not held by tenants, were disposed of by the Land Commission through auction or otherwise.

10. All Jagirs were confiscated without compensation.

11. All occupancy tenants were declared as owners.

12. Adna Maliks (inferior owners) were declared full owners without making any payment to the Ala-Malik (superior owners).

13. The Ala-Malikiat rights (superior ownership rights) were abolished.

14. Ala-Khud-Adna (superior-cum-inferior ownership rights) were converted into full proprietory rights like Adna-Malikiat rights.

The effect of these reform may be summarised as under :—

No. of landholds affected by Land Reforms.	Area surrendered by them.	Area given by tenants	Area disposed of otherwise
14	41,693 Acres	5,693	18,545 Acres

Each village has now become-in-association of different classes of man, land-lords, tenants, peasant proprietors etc. belonging to different tribal groups. The land tenure system can be grouped into the following categories:—

1. *Zamindari Tenure.*

In all old villages some type of land landlordism exists. In other except in Raiyatwari chakes they predominate. These villages were owned by one proprietor and one family, the shares in later case being undivided. Such villages are classified as Zamindari villages. In other words Zamindari tenure is compatible with large landed states owned by one or few land-lords may be due to undivided ownerships or land being jointly held. Most of the Thal villages fall within this category. Where-ever the land is owned by an in dividual or a family, the cultivation is being carried with the help of the tenants. Thus the village population consists largely of tenants who cultivate the land as tenant-at-will. In theory this tenure is extinct, but in practice all land revenue settlement is with the landlord who shift the burden to tenants.

2. *Peasant Proprietors or Bhai-chara.*

Bhai-chara means "brother-hood by custom". It is applied to those villages which are held generally by descendants of one clan and whose rights are determined by custom. It means that possession of each owner or a group owner is the measure of the rights. In other words the wells or holding are quite independent of one another and have nothing in common. Under the circumstances in which the tenure system grew in this district it was not uncommon that share holders possession should become the measure of rights particularly when the village community did not belong to one compact family group but a fortuitous congregaton of units whom circumstances had brought together. The introduction of different classes of land-lords in the Sultanate period, the unwanted introduction of inferior owners during Sikh ascendancy and the settlement of refugees and the colonists after 1947 have converted even the village where one clan existed collection of different classes and groups each being owner of the land under his possession, and having nothing in common excepting a joint liability of payment of land revenue assessed on the estates long ago. How it come to be held as Bhai-chara despite its colourful character, Capt. Garham remarks may be referred to as :—

"In practice, each man's holding has become the sole measure of his right. In the event of disproportion arising between any of the holdings and the share of revenue assessed upon them, the estate is liable to redistribution of the revenue, but to no repartition of the lands. There is no community of possession in such lands, which are inherited,

transferred and possessed in severalty. Each estate is made up of independent freeholds, and each freehold made up of fields which sometimes, he contigous, but more frequently are found scattered about and inter-mingled with the fields of other proprietors. The fields are often possessed by men of several different communities, of distinct families, and tribes having no interest, either actual or contingent, in common, and no cencern with each other but that of holding fields within the boundry of the same township, residing in a part of the same hamlet or paying, either through a common or separate representative, their portion of the revenue assessed upon the village. Still these men, though maintaining their individuality, belong to village communities, and the latter are not unfrequently composed of the descendants of a common ancestor. In such tenures the grazing land alone is held in common."

Where the land in villages has not been partitioned and the land is held in Shamlat the term "Bhai-chara Ghair Mukamal is generally applied. The number of such villages is largest in the Alipur Tahsil where river front prevents partition of a common riverain land. There are similar number of old villages in greater Thal. To those where the measure of possession has been defined on the field individually the term Bhai-chara Mukamal is made applicable and to those where land has not been partitioned and is held as Shamlat the term Bhai-chara Chair-Mukamal is used.

Pati-dari.

The term Pati-dari according to the Mayne "applies when holdings are all in severalty and each share manages his own portion of land. But the extent of the share is determined by ancestoral right as derived from a common ancestor and is capable of being modified from time to time upon this principle. This system agrees with Bhai-chara in as much as each owner holds his share in severalty. But it differs from it in as much as the extent of holding is according to the ancestoral right and not according to the possession held by him at the time of constitution of the revenue state as in Bhai-chara. "The pati-dari tenure is very rare and is in existence in few villages.

Raiyat-wari, tenure.

There are large number of chaks which have been recently carved out of the state land or T.D.A. land. In these chaks the land is held on tenancy basis from the state or T.D.A. with security fully guaranteed and practised. The land is held either under TDA Act to the peasant proprietors under proprietor scheme or

given under Sheep Breeding Scheme or sold by TDA under Fixed Price Scheme or Open Auction Scheme. There are other chaks where lands have been granted under Grow More Food Campaign or Reclamation Scheme. The ownership of common or Shamlat waste vests in the state or TDA and not in individual community. The occupant enjoys heritable and transferee request which places him practically on the same foothings as owners. hTe land has been granted either on long leases or on condition to purchase after sometime.

Reform analyser.

The vast areas are still lying undeveloped, and Shamlat still lying unpartitioned. Tenure system is likely to become more complicated due to the following factors :—

(a) There are still large number of villages where land has not yet been partitioned undivided share in land is still being purchased at nominal price from illiterate peasantry.

(b) There are still large Rakhs, which may be taken as large holdings by interested people.

Adhalpi.

Adhlapi is a system of contract under which a proprietor allows another person to sink a well in his land on payment of a fee and to bring the land under cultivation. He thereafter appropriates the land as propietor of his share of land brought under cultivation. Similary a person plants a garden on land and receives a share of the land under garden.

Lichh.

If an inferior proprietor cultivates through tenants he receives a grain fee which is called Lichh on the Indus and Kasur on the Chenab. The rate varies with locality and in consequence of contract, but it is almost invariably one-seventeenth of the gross produce and is known as lichh solh satari.

Mundhimar, Butemar and charhayat Tenants.

1. Those who had by clearing the jungle and by bringing land under cultivation acquired a permanent right to cultivate.

These are called Mundhimar, Butemar and were as a rule recorded at the first regular settlement as tenants with lights of occupancy, and

2. Those tenants who had been put in, with or without a term being fixed by proprietors, to cultivate land already cleared and fit for crops. These are called Charhayat. They were usually recorded as tenants without rights of occupancy.

Mahsulkhor.

It often occurs that an inferior proprietor, agrees with some third person, usually a village shopkeeper, that the latter shall receive the mahsul, pay the Government revenue out of it and keep profit or bear the loss. Such a person is called a Mahsulkhor. This arrangement was very common before the first regular settlement, but the class is dying out, and only a few solitary instances are to be met with now.

Liohhain.

Lichhain means a cultivator who tills his land with borrowed bullocks and pays the owner of the bullocks half of the Rahm, or cultivator's share.

Anwahnda

Anwahnda literally means ('without working'). Hence it means that share of the produce which a person connected with land receive without working, or foregoes because he has not done work which by custom was incumbent on him. *e.g.* A lends B money and, instead of getting interest in cash receives a share of the produce. That share is called anwahnda because A gets it without working for it. When a landlord has cleared the jungle and brought land under cultivation himself and then gives it to a tenant to cultivate, he takes an extra share of the produce because he has himself done the work which the tenant should have done. This share is called anwahnda because the tenant did not do the work of clearing. The word anwahnda of itself has no meaning without the history of the manner in which it accrued.

Lekha Mukkbi

Lekha Mukkhi is the name of a kind of usufructuary mortgage in use. A debtor makes over his land to a creditor until the debt is paid from the produce of the land, or the debtor retains the cultivator and agrees to pay he proprietor's share to the creditor. In both cases the creditor charges the interest of the debt and expenses against the debtor and credits him with the produce of the land or with the proprietor's share until the debt is liquidated.

LAND REVENUE

Village Communities and Tenure.

There are in this District no village communities in the sense in which this term is used with reference to the villages of the Northern Districts of the old Punjab Province. Elsewhere in the province, even in villages whose share-holders realise in practice the nearest approach to the idea of individual property in land, the village community, as a whole, constitutes the proprietary unit, its sections being really sub-divisions.

The bulk of the rural land owning population of the district belongs to the original inhabitants who are the descedents of the native settlers or generals, religious leaders, chieftains or other influential persons who received grants or jagirs from the various rulers of the kingdoms of Delhi, Kabul or Sind. These land owning tribes obtained proprietary titles in the land under the possession of their ancestors, along with the rights and liabilities of the various forms of village tenures then existing in the district which had their origin in the former revenue administration. Their interest in land was always subordinate to that of the Government. Some of the leading tribes, of the district especially those who are important as land owners, are Syeds, Qureshis, Biloches, Jats, Rajputs, Pathans, Arrians, Gujars etc; but neither in the census of 1951 nor in that of 1961, the population on tribal or caste basis was enumerated except for tribal areas, presumably because the Land Alienation Act, distinguishing agriculturist from non-agriculturist tribes was repealed in 1947-48.

In the District of Muzaffargarh the following village tenures, now exist:—

(1) Bhayyachara mukammal;

(2) Bhayyachara ghair-mukammal;

(3) Pattidari;

(4) Zamindari; and

(5) Zamindari bilijamal.

Practically every well in the district constitutes a separate estate, and for administrative purposes a number of wells has always been grouped together under the name of a village. In some places there never was any land common to the wells; in

others, where there was some common land, it has been partitioned, and now each well has a waste area of its own. The great majority of villages is accordingly held on the tenure called bhayyachara mukammal (complete), which means that the possession of each owner or group of owners is the measure of their rights; in other words, the wells or holdings are quite independent of one another and have nothing in common. Next in importance comes the tenures called bhayyachara ghair-mukammal (incomplete), where there is some village shamilat (common land). The number of such villages is largest in the Alipur Tehsil. The extensive river front prevents a partition of the common riverain. tract. In the Kot Adu and Leiah Tehsils the extensive waste area of the Thal has so far been found useful for the grazing of cattle without restriction.

With the exception of the Thal villages, where no partition could take place in consequence of the agreements executed under the Sindh Saghar Doab Colonization Act, the villages of this class are being converted gradually into bhayachara mukammal. The Pattidari tenure is rare. The few villages classed under that head were formed more by throwing into one village areas held by different groups of proprietors.

The following extract from an old Gazetteer will be found interesting: —

It is in many cases simply impossible to class a village satisfactorily under any one of the ordinarily recognised tenures, the primary division of tights between the male sub-divisions of the village following one form while the interior distribution among the several proprietors of each of there sub-divisions follows another from which itself often varies from one sub division to another. Especially in this the case in Muzaffargarh where the village communities are not as a rule compact family group, the members of which claim descent from a common ancestor, but fortuitous aggregations of units whom circumstances rather than nature, have brought together. Owing to the mode in which inferior proprietorship was formed, *viz* by settling individuals to till the land, it follows that most villages are mere collections of wells, grouped together for serving purposes but not really knit together in any way, and that the only real bond in many cases between the members of village community in this district is the artificial bond, imposed by our Government, of joint responsibility for the land revenue. To such communities as in Multan, so here, neither of the terms pattidari or bhayyachara, can their original significance be applied with propriety. The technical sense, however, of the term bhayachara, which is used to express a state of things where possession, and not ancestral desent, is the measure of right and liability, seems

to apply more nearly than the term pattidari, which implies that ancestral right, as derived from a common ancestor, is the rule by which each man's share in the village lands is determined. The process by which the existing state of things was arrived at differs materially from the process implied in the terms pattidari and bhayyachara; but looking at results along, it is possible to apply the term bhayyachara in its technical sense to these villages. The extent of each man's possession is the measure of his rights in, and liabilities on account of the village and this is practically the essential feature of the bhyyyachara tenure.

These remarks apply to the majority of village communities, but not to all, for there are some few undoubtedly which really approach the standard of village communities elsewhere, being composed in the main of members of one clan, descendents perhaps of a common ancestor. Even in these, however, ancestral right, as regulating the relative claims of the share holders, has completely fallen into abeyance. The villages classed as zamindari are probably rightly so classed they are villages owned by one proprietor or by one family, the shares in the latter case being undivided. In illustration of what has been said the following remarks of the Settlement Officer of 1857, Captain Graham, may be quoted:—

"In practice, each man's holding has become the sole measure of his right. In the event of diproportion arising between (any of the followings and the share of revenue assessed upon them), the estate excess liable to redistribution of the revenue but to no repartition of the lands. There is no community of possession in such lands, which are inherited, transferred and possessed in severality. Each estate is made up of independent free holds, and each freehold made up of fields which sometimes lie contiguous, but more frequently are found scattered about and intermingled with the fields of other proprietors. These fields are often possessed by men of several different communities, of distinct families and tribes having no interest either actual or contingent, in common, and no concern with each other but that of holding fields within the boundary of the same township, residing in a part of the same hamlet or paying either through a common or separate representative, their portion of the revenue assessed upon the village. Still these men, though maintaining their individuality, belong to, village communities, and the latter are not un-frequently composed of the descendents of a common ancestor, in such tenures the grazing land alone is held in common".

Superior and inferior Proprietors.

There are not many zamindari villages, and most of them are Government rakhs.

The tenures of the district are inseparately connected with the former revenue administration. The mutual relations of the classes living on the land have been formed by the revenue system of the Sikhs and the British. The system has not adopted itself to the existing state of things, but has distinctly and abruptly interfered with it. At the head of the agricultural system is a large body of what are now called superior proprietors. Most of these are the descendants of tribes who came here for grazing at a time when the country was depopulated. With or without the leave of the Government of the time they occupied tracts the boundaries of which were not very clearly defined. Of this kind are the Thahims near Muzaffargarh, the Parihars of Kot Adu, the Khars of Thal the Chhajaras and Dammars of Alipur and other tribes still occupying distinct tracts of country. Other superior proprietors are the Descendents of jagirdars and former governors or officials who lost their position in troubled times but were able to retain a right to a small grain fee in the tract over which they once exercised power. Others are the descendants of Makhdums and other holy men who formerly held land free of revenue, but whose rights have been circumscribed by successive Governments. The superior proprietors above described were from the first in the habit of introducing settlers to till the lands, but the development of the settler class was due to Diwan Sawan Mal. When he took the farm of the revenues of this district from Ranjit Singh, he saw at once that cultivation could not be restored or increased by the representatives of former governors, holy men, broken-down jagirdars and loosely connected tribes whom he found in normal possession of the lands. He, therefore, encouraged strangers and Hindu capitalists to sink wells, dig canals and cultivate the lands of nominal owners. At the same time, he secured to the latter a share of the produce, generally half a seer in each maund by weight, or one pai in each path where the crops were divided by measure. In some cases the old proprietors were strong enough to levy an institution fee when settlers were located on their lands. In this way two district classes of proprietors were formed:—

(1) the old possessors, who were known as zamindars and muqaddams, and in modern official language malikan ala and talukdars; and

(2) the settlers, formerly called riaya and chakdars, and now generally malikan adna. The chakdar acquired his rights in the land by sinking a well.

The superior proprietors, malikan ala, claim to be owners of all unappropriated land, and entitled to a small share of the crop produced in the appropriated land. The malikan adna, who are full proprietors of the land in possession, subject to the payment of the share of the old proprietors, are not liable to

eviction on failure to pay it, and are entitled to, introduce tenants without reference to the superior proprietors. Since annexation, the fortune of the superior proprietors has varied. In some villages the tenure has disappeared. In others, especially where little unappropriated land was left, the lambardarship, which was a novelty, took the place of the superior proprietary right. The superior proprietors, as such, have no right to interfere in the management of the cultivation of the appropriated lands of a village. The settlement has in no case been made with them. Except where they are also inferior proprietors, their rights are restricted to receiving their fee in grain or cash and to disposing of the unappropriated waste in the village. The name of the superior proprietary right is zamindari, muqaddami or milkiyat ala. The share of the produce is *hak zamindari,* hak muqaddami and malikans; or more often the specific rate at which the share is fixed; *e.g.,* adh-sera man and pai path are used instead of the genric word. In Kotadu and Leiah it is called "Satten panwen", or the seven quarters of a rupee, which is equal Re. 1-12-0, the rate at which it is paid. The institution fee is called jhuri sar-opa, pag and "lungi".

The Multani Pathans. One set of superior proprietors was formed by the direct action of the British Government. They are the persons known here as the Multani Pathans. Under the Pathan Governors of Multan a number of Pathans had settled in this district. They enjoyed grain allowances which were given as a deduction from the mahsul, or Government share of the produce. When the Sikhs in 1818 took Multan, the Pathans fled from the country. In 1848 they joined Major Edwardes and rendered services in his operations against Mulraj. When the country had become quiet, the Pahtans claimed restoration. The rules of limitation were art aside in their favour, and the Board of Administration prescribed rules for the regulation of the trial of suits instituted by the Pathans of Multan for the recovery of their ancestral rights, of which the following is an extract.

"Rule 2.—To establish the right of a party to sue, irrespec tive of the statute of limitation on the merits of his claims to re-possession of zamindari property, he must prove that he was a Multani Pathan present with Major Edwards, force, or that he is a member of a family of Multani Pathans, some of the members of which family were present with Major Edward's force".

In pursuance of these rules, cases continued to be heard up to December, 1852, and Pathans obtained decrees for Kasur (different from the kasur, or rent of the inferior proprietors, also so-called) in the villages of Jalalabad, Pipli, Ran, Khanghin, Mehra Faraz, Wafadarpur, Mehra Nasheb, Ghazanfargarh,

Doaba, Jarh Latukran, Langer Sarai and Lalpur. It was not observed at the time that under the Pathan Governor this Kasur was paid as a deduction from the revenue, and that if the Pathans were to be restored under the altered state of things brought about by a cash assessment, the more just method was to have given them an allowance from the revenue, and not to have imposed a new gram cess on the cultivators in 1853 the Deputy Commissioner rtported that the exercise of the rights of the Pathans who recovered kasur paralysed the industry of the cultivators, and again in 1859 he said that the restoration of the Pathans to kasur rights was impolitic. The failure to define those rights had allowed them to encroach on the inferior proprietors and to ruin them. He instanced villages that had been ruined in this manner. The result was that in some villages the Pathans succeeded in ousting altogether the inferior proprietors in others they reduced them to the position of tenants-at-will. When the inferior proprietors were too strong to be interfered with, beyond the enforced payment of kasur, the Pathans became superior proprietors.

Inferior Proprietors Adhlapi, Lichh and Kasur.

The inferior proprietors in a village have usually no communities of clanship. They are a miscellaneous body each member of which was originally introduced either by the Government or by the superior proprietors. In villages where superior proprietary rights exist, the inferior proprietor is usually entitled only to the land occupied by himself or his tenants. The unappropriated waste belongs to the superior proprietors. The inferior can graze his cattle in it, subject to the tirni rules, but cannot cultivate it without the leave of the superior. In other respects, the tenure of inferior and absolute proprietors differs only in that as regards the latter, the superior right has ceased to exist. The formation of new superior proprietorship where it has ceased to exist has of course long been impossible, but new inferior and absolute proprietors are constantly being made by the contract known here as *adhlapi or Adlopi.* A proprietor allows a third person to sink a well in his land on payment of a fee, and to bring the land under cultivation. The person so sinking the well becomes proprietor of a share of the land brought under cultivation, or a person plants a garden on land and receives a share of the land under the garden. If an inferior proprietor cultivates through tenants, he receives a grain fee which is called Lichh لیچ on the Indus and Kasur کسور on the Chenab. The rate varies with locality and in consequence of contract, but it is almost invariably one-seventeenth of the gross produce, and is known as Lichh solh satari لیچ سول ستاری under former Governments the share taken by the state was the Mahsul. " محصول " Now the person who pays the land revenue receives the mahsul. This person may be by agreement the superior proprietor or the tenant, or even some person unconnected with the land; but as a rule, the inferior

proprietor pays the land revenue and receives the mahsul. For the purpose of settlement, he has been presumed always to pay the land revenue and to receive the mahsul, and his profits have been assumed to be the mahsul plus the lichh or kasur.

Proprietary and Cultivating Occupancy of land.

The table below from the last Settlement Reports, shows the cultivating occupancy of land at the previous two settlements:—

Detail.	Cultivated area percent: At settlement of the year 1901-02.	Cultivated area percent: New
1. Cultivated by owners	41	45
2. Cultivated by tenants paying no rent	—	2
3. Cultivated by occupancy tenants	8	5
4. Cultivated by tenants-at-will	51	48
5. Tenants-at-will paying cash rent	1	1
6. Tenants-at-will at revenue rates	4	2
7. Tenants-at-will paying other rents	46	45

In the last decade of about 20 years, there had been little change; the occupancy tenants were then found almost entirely in the riverain of Leiah and Kot Adu tehsils where they were given security of tenure in return for the labour of clearing the heavy growth of scrub forest.

In the year 1952, Aggrarion legislature was passed, by which the occupancy tenants were conferred proprietary rights for the area under them. In recent years the land lords have mostly taken up self cultivation. In the Thal where there was scarcity of the tenants in the previous years the owners have started self-cultivation due to the development of the Thal area under the Thal and Taunsa Barrage Projects.

The present position of the proprietary and cultivating occupancy of land is shown in the table below (figures collected from the office of the Sadar Kanungo, Muzaffargarh).

S.No.	Detail of tenancy	Percentage of cultivating area
1.	Cultivated by owners	48%
2.	Cultivated by tenants paying no rent	3%
3.	Cultivated by occupancy tenants	—
4.	Cultivated by tenants at will	49%
5.	Tenants-at-will paying cash rents	—
6.	Tenants-at-will at revenue rates	—

The average holding in the district comprises of 24 acres. Except on the market gardeners' wells round the towns, cultivation is too precarious for cash rents to be taken, and throughout the district the tenants pay a share of the produce as rent· Indus land crops irrigated by lift pay one quarter after deduction of the menials dues; crops grown on flood water pay-one-third In the richer Chenab lands the common rent is one half. There are special rents for the expensive crops such as cane and tobacco, which usually pay one-quarter or one-sixth. Canal rates are invariably paid by the tenant. The owner usually gets at the most a nominal share of green fodder, and seldom any share of straw, though there is no uniform custom even on the wells grouped in a single estate.

The recorded rents are almost every where the same as at last settlement.

Class of Tenants.

Mudhimar Butemar and Charhayat Tenants.

Two classes of tenants existed before the First Regular Settlement: —

(1) Those who had by clearing the jungle and by bringing under cultivation acquired a permanent right to cultivate. These are called mundhimar or butemar, and were, as a rule, recorded at he First Regular Settlement as tenants with rights of occupancy; and

(2) Those tenants who had been put in, with or without a term being fixed by proprietors, to cultivate land already cleared and fit for crops. These are called *"Charhayat"*. They were usually recorded as tenants without rights of occupancy.

Tenants are now classified according to the language of the Tenancy Act of 1887, land was so abundant at the First Regular Settlement that the occupancy status had no attraction for tenants. They preferred not to be tied to the land, and to be able to change their cultivation when they liked. In the Kot Adu Tehsil applications by tenants not to be recorded as having rights of occupancy were common though they were by custom entitled to permanent possession. For quite sometimes after the last settlement of the year 1920-24 tenants were still eagerly sought after and, as a rule, free from any attempt on the part of the landlord to extort from them. Every efforts was then made to retain them. The share of the crop received by the tenants is called *"Raham"*.

The position has now changed altogether. Since the passing of the Aggrarion Laws of 1952 and Land Reform Legislation of 1959, the landlords want to cultivate their land theirselves while the small land owners, too want to undertake self-cultivation.

Exceptional Forms of Agricultural Status.

In addition to the usual forms of proprietors and tenants with their respective shares in the produce, there are certain exceptional forms of agricultural status which may be described.

Mahsul Khor.

If often occurs that an inferior proprietor, from indolence or inability to keep accounts and manage for himself, agrees with some third person, usually a village shopkeeper, that the latter shall receive the mahsul, pay the Government revenue out of it and keep the profit or bear the loss. Such a person is called a "*Mahsulkhor*". This arrangement was very common before the first regular settlement, but the class is dying out, and only a few solitary instances are to be met with now.

Lichhain.

Lichhain means a cultivator who tills his land with borrowed bullocks and pay the owner of the bullocks half of the raham, or cultivator's share.

Anwahanda.

Anwahanda literally means "without working". Hence it means that share of the produce which a person connected with a land receives without working, or foregoes because he has not done work which by custom was incumbant on him, e.g. *A* lends *B* money, and, instead of getting interest in cash receives a share of the produce. That share is called anwahanda because *A* gets it without working for it. When a landlord has cleared the jungle and brought land under cultivation himself and then gives it to a tenant to cultivate, he takes an extra share of the produce because he has himself done the work which the tenant should have done. This share is called "anwahanda" because the tenant did not the work of clearing. The word anwahanda of itself has no meaning without the history of the manner in which it accrued.

Lichh Khuti.

Lichh in its ordinary sense means the due of the inferior proprietor, and is synonymous with kasur as already described. But lichh also means the interest due on a mortgage of land when the mortgage continues in cultivating possession, whether it be paid in grain or cash. Another kind of lichh is valwin lichh, *i.e.* returned lichh" which is also called *Khutti* when land is mortgaged to a Muhammadan and the conditions of the mortgage are that the mortgagee shall cultivate the land, he agrees to pay a small share of the produce to the mortgager. The share is called "valwin lichh" or *Khutti*. The use of lichh to mean interest, and the practice of valwin lichh", are devices of Muhammadans to evade the charge of receiving interest. This type of valwin lichh is not in use now.

Lekha Mukhi mortgages.

Lekha mukhi is the name of a kind of usufructuary mortgage in use. A debter makes over his land to a creditor until the

debt is paid from the produce of the land, or the debtor retains the cultivation and agrees to pay the proprietor's share to the creditor. In both cases the creditor charges the interest of the debt and expenses against the debtor, and credits him with the produce of the land or with the proprietor's share until the debt is liquidated.

Land Revenue system.

In the Indo-Pakistan sub-continent the state has always claimed a share of the produce of the land from the persons in whom it recognised a permanent right to occupy and till it or arrange for its cultivation. It was a time honoured recognised customary law of the country that a ruler had always a right to share the income of the land occupied and held by the cultivator, and it was the first charge upon the land, .

Land Revenue System under previous rule.

During Sher Shah Sori's period, the land revenue system was regulated. It is reported by various historians that this Afghan ruler got the land of villages of northern India and the Punjab measured and fixed land revenue on the cultivated land in accordance with its class and productivity. The land revenue was generally charged at the rate of ¼th of the produce of the land. In his regime a set of several *parganas* was grouped together to farm a sarkar so that proper supervision could be exercised by various revenue officials, like Patwaris, Kanungos, and *Karkun* within each *serkar* in order to assist the work of the *Subedar*, who was overall incharge of each *sarkar*.

Mughal Revenue System.

During Akbar, in 1574 A.D. the system of fixation of land revenue was first introduced in the shape of regular settlement when revenue record like Jamabandi was prepared. The term of settlement was fixed for 10 years. The enforcement of this revenue system is attributed to Raja Todar Mal. By this system a cultivator knew before hand, firstly, what he would have to pay the Government after each harvest, secondly, how for it was economic for him to cultivate his land, During the course of this first settlement of the Mughal regime. land revenue was assessed on land class-wise and in each *sarkar* an Amail (collector) was appointed and entrusted with other administrative work inclusive of the treasury. This pattern of revenue administration was also maintained during the reign of British and such an Officer was known as Collector and still carries the same designation in the district of Muzaffargarh as in all other districts. This land revenue system of the Mughals was adopted by the British Rulers with necessary amendments. It is note worthly that the land revenue system in (Agra Oudh)-was based on the above described Moghal land revenue system. The British merely introduced this system in the former Punjab after annexation.

Prior to the Sikh regime, Muzaffargarh District was held by the Nawabs of Thal and Bahawalpur. The Land revenue in the Nawabs regime was collected in kind on all crops except cotton and tobacco. The pay of village servants was set aside from the gross produce of the remainder the Nawabs took 1/5th or 1/6th A cess called *tik* was also levied. Similarly *Tirni* (grazing tax) was also fixed for each tract. The Bahawalpur Nawabs collected revenue in kind besides *tik* cess and tax on indigo which was called *Mughla*.

Sikh Revenue System.

During the Sikh period this district was held by various lessees to whom the revenue of the district was formed out. These lessees would pay a fixed sum to Government and made their own arrangements with the villages in their form. Such lessee would either sublet part of their farm to others, or managed the collection of the revenue themselves through agents or *kardars*. Till Sawan Mal's time the system of *Kan* or apparaisment of the crop was the one generally followed. The fiscal history of Muzaffargarh District really begins from the administration of Diwan Sawan Mal, a Governor of the Sikh regime who held the Province of Multan (including Muzaffargarh District) under Maharaja Rangit Sing. He is remembered as a builder of canals and wells. Under Diwan Sawan Mal, there was a great deal of personal interference with the cultivators and it was part of the administration to see that the rights of all the persons attached to the land, were secured. If one man did not cultivate his land it was given to another who did. His method of assessment in the irrigated parts of the district was to take the share of the produce usually one quarter, which he sold to the cultivators at commutation prices fixed each harvest, except in the estates near Multan town from which the share was taken in kind. In addition to the revenue a large number of cesses was imposed but remitted, either wholly or in part except in good seasons. The pitch of land revenue was low to begin with and gradually the assessment was raised as circumtances justifiied it. He adhered to the ancent rate of Government share but where it could be done he raised the revenue by adding cesses and at the time of annexation it was found that where the rate of the Government share was high, cesses were few; where the rate was low the cesses were many. Cash rates, which varied from village to village were imposed on cash crops such as cane and tobacco. In the Thal where the cost of the division of the produce of the scattered wells would have been out of all proportions to the amount realised, a cash assessment was placed on each well, the normal being Rs. 12/- recovered in instalments of Rs. 50/- in the Kharif and Rs. 7/- in the Rabi. The Diwan's assessment was heavier than any which has since been worked successfully, but it had the advantages of being

based on actual, outturns and actual prices. The names of the some of the then prevalent cesses are given below: —

(1) Nazar Mukadami	..	This was levied when the crop was usually good; the kardar thought that government should share in the prosperity and thus this fee was levied.
(2) Shukrana	..	This fee was levied when the price rose, much after the rate fixed for commuting the grain into cash.
(3) Nazar Moharrir	..	This was also called pao-mani (a quarter of a seer per maund) on all crops, levied when the crops were weighed.
(4) Frui Korawa	..	This consisted of fines on cattle tress-passing, levied by the watch men, engaged to watch crops while ripening.

The names of some of the other cesses, taxes, or fees are (1) Nazaranas (2) Dubiri, (3) Mohasli (4) Bhara.

Changes of administration.

The revenue system was changed at the time of the annexation of the district to the British rule. All such taxes, cesses and fees were abolished. The main feature of the British settlement policy which the Punjab (including Muzaffargarh District) after annexation, received from (Aghra and Oudh) were.

(a) A proper field survey with the results embodied in a map and field register.

(b) A full inquiry into the rights and liabilities of all persons having an interest in the soil, and the record of these rights and liabilities in payment registers.

(c) A moderate assessment based more on general considerations than on attempt to deduce the demand from an exact calculation of the land lords net assets and the share there of, claimable by the Government.

Summary Settlement.

Three summary settlement were made in the district after annexation and before the start of the first regular setlement of the district which was conducted in the year 1880 A.D. The first summary settlement was based on the average collections of the Diwan Sawan Mal's regime. Since these were high and since the great merit of his system was that he avoided averages and worked on actuals though the new demand was less than he had taken, it proved to be more than the cultivators could pay in good and bad seasons alike, and in the, later summary settlement it was considerably reduced; for example in 1850 the demand in Leiah was fixed at Rs. 1,28,496, in 1853 was reduced to Rs. 1,22,793, and in 1862 to Rs. 95,763. Inspite of all these reductions the demand

of the summary settlement was considered as akward, because, although the demand was low, the method of assessment was wrong. As a result there-of most of the estates were abandoned by their owners and numerous Government rakhs were formed in the district.

First Regular Settlement.

The defects found in the summary setllement were removed in the first regular settlement. During this settlement. all lands were measured up and a correct field map was prepared for every village and revised assessment were introduced in the various tehsils. The tehsils were divided into various assessment circle with reference to the sources of irrigation, the system of agriculture and other circumstances. The reverain tracts including the Bet Sind and Bet Chenab circles together with the Chahi Sailab circles were placed in a fluctuating system of assessment, whereby the cultivated areas was measured annually and assessed to a rate per acre fixed for each village. Besides, the revision of the Rakh demarcation the arrangement for the proper management of the canals and more complete organization of the *Chher,* system and the arrangements for future relief of estates in case of the failure of canal irrigation, were also carried out in the first regular settlement operations. This settlement was carried out in the three Southern Tehsils by Mr. O, Brien in 1870-78 and in Leiah by Mr. Tucker in 1872-78. The method of assesment was the imposition of fixed demand on all holdings not subject to the riverain action and in the riverain estates of a fluctuating assessment by soil rates. Through out the riverain circles of all four Tehsils, and the canal Irrigated tracts of the three Southern, the assessment worked admirably, in the years between 1880-1900. In the Thal, however, the system of fixed assessment by which all owners were jointly and severally responsible for the revenue of the entire estate, proved unsuitable to the special conditions and broke down utterly after a succession of bad season.

Second Regular Settlement.

The second regular settlement of 1900 was carried out in the three Southern Tehsils by Pandit Hari Kishan Kaul, P.C.S. In Leiah the work was begun by Captain Crosthwaite, I.A. who inspected the estates and submitted proposals, but died before the work was fininshed; the assessment was completed by Pandit Hari Kishan Kaul. Three methods of assessment were adopted to suit different conditions, firstly of Thal; secondly of the canal irrigated estates which were regarded as secure; and thirdly, of the insecure canal-irrigated estates and those irrigated by flood from rivers, the method of assessment in the riverain of Leiah, which Pandit Hari Kishan Kaul inherited from Captain Croshwaite is rather different from that devised by Pandit Hari Kishan Kaul himself for the Southern Tehsils.

In the Thal the unit of cultivation is the well, and different wells which are grouped together to form an estate have no connection one with one another: the system of assessment by estates was, therefore, abandoned, and a return made to that of Diwan Sawan Mal, though with various improvements. Each holding on a well was separately assessed to a fixed sum, collected every year, provided that not less than half an acre was cultivated or if, the holding covered entire well, area on one acre. The waste lands in each estate were assessed to revenue on the grazing, and the few palms on the wells of the Jandi Circle nearest to the riverain area were also assessed. The land revenue and revenue on palms is paid in the rabi and that on the grazing in the Kharif. The assessment on grazing was to be treated as a maximum, and relief was to be given in bad years; but in practice, the demand has always been easily paid. The Thal Assessment

The fixed assessment which Mr. O, Brien had put on all estates protected from the action of the rivers was maintained by his successor in the Pakka and Thal circle of the Muzaffargarr Tehsil, and in the Pakka and Nahri Thal Circles of the Kot Adu Tehsil; he changed it in Alipur, except in parts of three estates. The assessment was first calculated for each estate; next the holdings were graded, the number of grades depending on the circumstances of the estate, which in a large one could be as many as seven. Rates were then determined for each class, and, with their help, the revenue was distributed over the holdings. Wells which had been sunk after the previous settlement were given remission of the difference betwen the nahri and chahi-nahri rates upto a period of 20 years; a similar remission was to be granted to the land of wells falling out of use; a water-advantage-rate of 10 annas (62 Paisà) an acre was to be imposed on all lands not nahri at settlement to which subsequently canal water might be given. Date-palms and mangoes were separately assessed, as was also the village waste. Secure Canal Estates.

The canal-irrigated estates of the Alipur Tehsil which Mr. O, Brien had placed under fixed assessment were assessed by Pandit Hari Kishan Kaul as though they had been riverain states on account of their insecure canal supply. He maintained fixed assessment only on the lands immediately surrounding the towns of Alipur Assessment of insecure estates.

Jatio and Shahr Sultan. With the exception of this very small area the whole of the Alipur Tehsil and the insecure portions of the Chenab and Indus circles of Muzaffargarh, together with the Indus circle of Kot Adu, were assessed in the same way. In place of the old soil-rates crop rates were framed, the garden crops with wheat, cotton, cane and indigo being grouped in one class, and the inferior food-grains and fodder in the second; that very inferior grain, samukka, was placed in the third class by itself. Since, however, it was found that some wells and holdings were superior to others in the same estate, and it was estimated that Chahi-nahri and chahi-sailab crops were better than those of the same kinds to which wells water was not given in addition to the crop-rates, a fixed sum was placed on each well, the wells in each estate being graded according to the area irrigated and the quality of the crop grown, new wells were given a remission of this fixed well assessment up to 20 years, and rules were framed for the grant of proportionate relief to old wells repaired and brought into use. Palms and grazing were separately assesed.

In the Kachha and Pakka riverain circles of the Leiah Tehsil the system was rather different since no fixed well assessment were imposed, and the crops were classified into three classes, the inferior-food grains and oil seeds being separated from the fodders. Since however, the Settlement Officer found a difference in the productivity of different wells, except in the most insecure estates the wells were graded and on the first-class crops of the better, that is to say, in practice, on the wheat, special rates of 2,4,6 and 8 annas (12,25,37 and 50 paisa) an acre were imposed according to the class of well.

Old Demand

Under these methods of assessment the revenue of the tehsils fluctuates considerably from year to year, with,on the whole an upward tendency, as the periods of remission of new wells expired and canal irrigation was extended; in 1924-25, the last year of the old settlement, the assessment excluding malikana and date revenue, was as follows:—

	Leiah	Kot Adu	Muzaffargarh	Alipur	Total
Assessment	1,09,539	1,49,888	2,80,352	1,96,698	7,26,477

Figures for all kinds of revenue including assigned revenue for the selected years may be found in the latter paragraph 35 of the Settlement Report of the year 1925.

Working of the Settlement.

When the new assessment was imposed, the Thal was desolate, and the demand was pitched low in order that the tract might be given an opportunity to recover. The justice of the assessment has been demonstrated by the general recovery of the whole Thal during the last 20 years. Throughout the rest of the district there was at this settlement a general complaint by the revenue payers against what at the time of assessment was probably the most admired feature of the old settlement the elaborate assessment by wells. At settlement it was assumed that, as a rule, the characters of the wells were permanent, and that it was safe to grade them and to place very heavy assessments on the best. This assumption is not justified in the peculiar circumstances of Muzaffargarh, where the area sown and the kinds and quality of the crops are alike determined not by the well, but by the flood supply, whether direct from the rivers or through the canals. Wells cannot be worked during the summer, and the kharif harvest is entirely dependent on the floods, in the rabi the area sown varies with the amount of the flood; and, whatever it may be, the crop will not be profitable unless the well is upheld by sufficient rain. In these circumtances, since the flood supply is in most estates very different from what it was at settlement, almost the only wells of which the grading was correct 20 years after settlement were those exceptional immediately round the small towns, where the crops are dependent rather on the plentiful manure which is available, than on the water-supply. In the Leiah riverain tract most of the vest wells were at settlement those under the high bank of the Thal, and these, owing to swing of the river to the West, now as a rule, get too little flood, and except immediately under the towns, are the worst in the circle. In the Kot Adu *Pakka* Circle cultivation has changed from moderate wheat to good rice followed by gram, and the grading made at settlement had ceased 20 years later to bear any relation to reality; though, since, as a whole, the circle had greatly improved, the revenue was so light that its unequal incidence was of little practical importance. In the Nahri Thal Circle, though the change in cropping was less marked than in the *Pakka*, the grading is now almost equally wrong, though here too there has been marked improvement, and the incidence was of little practical importance. In the Kot Adu Indus Circle the construction of protective embankments and of canal escapes, together with the clearance of much Jungle, have changed the conditions of the circle and, generally speaking, the worst wells in 1923 were the heaviest assessed. Further South in the Indus Circles of Muzaffargarh and Alipur, the general tendency of the river has been to withdraw towards the West, and the well assessments in 1921-22 were seldom correct. In the Chenab circles of

the two Southern Tehsils the river has been swinging to the West: while, on account of the extension of perennial irrigation in the Punjab, the floods are less dependable than of old; at settlement the higher lands were, as a rule, the better, whereas now the lower produce the best crops; in these circles also the heaviest well assessments were, as a rule, found on the worst wells. In the *Pakka* circle of Muzaffargarh the wells irrigated from the Chenab canals had suffered in much the sames way as those which get their flood direct from the river, though as a rule, to a greater extent, particularly on the Hajiwah Branch of the Taliri Canal. In the estates of Muzaffargarh and Alipur irrigated from the tail of the Maggi, the Ghuttu, the Puran and the Suleman the changes in the quality of the wells were very marked, though less extreme than on the Chenab side of the district, except at the tail of the Magi and the Ghuttu, where the supply is worst than at settlement. Conditions in the Thal circle of Muzaffargarh were generally similar to those of the Nahri Thal of Kot Adu. The position would have been more serious were it not for the peculiar character of the revenue payers who, as a rule, fall into two classes. Generally speaking, it mattered little to the large landowners that their wells were more heavily assessed than their best since the general pitch of the assessment was not excessive and what they lost on one well they gained on another. So too, in practice, though the small holder might be paying four times a fair assessment or only a quarter of it, the amounts involved were usually too small to make any real difference to his financial position. None the less there was a universal complaint against the assessments based on the grading of the wells, and there is no way in which the system can be defended. It is true that there is a great difference in the different holdings in all the circles, but, under the existing conditions of flood supply, the only thing which is certain is that 20 years hence it is most unlikely that the status of any single holding will be what it is now.

Third Regular Settlement.

The third regular settlement was conducted by Mr. J.D. Enderson, ICS, from March, 1921 to April, 1925. The term of settlement as recommended by the said Settlement Officer was 30 years but the Government vide their memo. No. 2939-R, dated 19th August, 1933 had fixed it as 40 years. In this settlement operation works relating to the revision of records, measurement of Thal, measurement of riverain villages, re-measurement and revisions, correction and preparation of maps, records of rights and village note books etc., were carried out. With regard to the assessment operation the whole of the Thal Circle, all villages of the Muzaffargarh *Pakka* circle irrigated from the Indus canals and the villages south including Ghazanfargarh irrigated wholly or in part from the Chenab canals were placed under a fluctuating assessment under the orders of the Government passed in the year 1931.

*No change had been made in the assessment circle of the last settlement, except that the Chahi-sailab Circle of the Alipur Tahsil had been abolished and *Pacca* Circle of the Muzaffargarh Tahsil had been sub-divided into two portions-mustaqil and ghair mustqil. The soil classification had been based, as before, on the method of irrigation. The lump assessment on wells had been abolished and assessment by crop rates had been introduced throughout; only portion of the district where fixed assessment had been retained, was the mustqil part of the *Pacca* circle of the Muzaffargarh Tehsil. As the fixed assessment which was introduced with effect from kharif 1925 did not work well in certain portions of the Muzaffargarh district, it was decided to introduce with effect from Rabi 1933 a fluctuating assessment by crop rates in the Thal Circle and ghair mustqil part of the *Pacca* Circle of the Muzaffargarh Tehsil. The system of assessment on mangoes, palms and grazing was maintained, though the rates were raised in some cases. The total estimated assessment of the district was raised by 8 percent as as a result of the re-assessment.

Mr. Anderson, the Settlement Officer in his report on the special assessment of two circles of the Muzaffargarh Tehsil pointed out that the Kharaba rule with two anna (12 Paisa) gradations had not worked well. In estates under fluctuating assessment the big owners found it paid to buy Kharaba from the *Patwaris*, Mr. Enderson conclusively proved that the new rule was so abused that whatever its theoretical advantage might be in practice, its application had been invariably unsatisfactory. He, therefore, recommended that old rule should be introduced under which any crop better than an eight anna (0.50 Paisa) crop paid full assessment a crop of less than four annas was counted as a complete failure. Government had accepted these proposals with the further modifications that a crop between eight and twelve annas (0.50 and 75 Paisa) will get one-fourth remission and a crop of more than twelve annas (0.75 Paisa) will pay full assessment.

Orders of the Government were also received regarding the secure and insecure areas, suspension and remission rules of land revenue on the small area under the fixed assessment and rules for protective leases of wells.

The following paragraphs are taken from the Final Settlement Report 1925 of Mr. J.D. Anderson which will give fuller particulars of various points tackled in this Settlement.

Revision of Record.

The measurements made at last settlement were, as a rule, very accurate in the canal-irrigated parts of the three Southern Tehsils where the country is open and it was easy to lay out the squares which were the basis of measurement. Along the Chenab riverain, where there is seldom taller growth, their tamarisk scrub,

the same system was finally successful though creeks, and protective embankment has been improved and the irrigation out of the straight. In the Indus riverain, where at last settlement there was heavy Jungle the measurements were inaccurate, so much so that several villages had to be measured after settlement without much improvement because the only system then available was unsuited to the natural conditions. At the first regular settlement the whole Thal had been surveyed on the squares system; on account of its vast size, its sand-hills and the hardship undergone in the desert by the surveyors, the measurement was very inaccurate, the error in parts of the Kot Adu Thal being more than two miles. At last settlement this expensive and useless labour was not again undertaken, and only the cultivated land round the wells was measured, no efforts being made to plot the position of the wells.

The district, for the purposes of measurement, thus fell into three parts (1) the canal villages, in which there had been little change since settlement and the old maps were accurate; in these maps correction could be carried out quickly and correctly; (2) the riverain areas and a few canal estates which at settlement had been mapped inaccurately on account of the natural difficulties; and (3) the great waste of the Thal of which as a whole there was no satisfactory map, though the measurements of the isolated patches of cultivation were sufficiently accurate for practical purposes.

Measurement of the Thal.

The measurement of the Thal was made with great ease, accuracy and speed. Almost the whole of the Thal has been broken up into rectangles for the Sindh-Sagar Doala Canal, and most of the boundary stones of these rectangles are in situ. The area of the rectangles being known, all that was necessary was to plot the rectangles on a mapping sheet and to take off set from the two nearest stones to each well sylinder. This work was done on a scale of 240 karams to the inch, which is too small for the practical work of *Patwaris*. The cultivated land of each well was, therefore, measured separately on the scale of 40 karams to the inch, the position of the well cylinder only being recorded in the small scale map. Since there are no permanent boundaries in the Thal, and most trijunction pillars have long been destroyed or burid under sand, the boundaries of the states were of necessity plotted from the map of the first settlement.

Measurement of Riverain Villages.

The remeasurement of the riverain areas was carried out with the helps of the Survey of India, who prepared the sets of maping sheets, the one showing only the boundary of the district as land down at last settlement and in the last settlements of the adjoining districts. The purpose of these sheets was the determination of the fixed district boundary. Once this work, which

was onerous on account of the wrong measurement at last settlement, was finished, these sheets were field in the record-room.

The second se tof mapping sheets was that made for use of *Patwaris*, in them a great number of triangles was plotted, out, the size varying with the nature of the country, and the angles, whenever possible, being fixed points such as wells. With the aid of these sheets, which do away with all the sources of error inseparable from measurements on a square system in riverain areas, measurements were made with great ease and accuracy. Unfortunately, at first, a system had been introduced for preparing the records, based on this triangulation which was not suited to the circumstances of the district. The *patwaris* entered in pencil in the sheets the fields which they found on the ground, and prepared khatunis based on this measurement. Later in the season, when the floods came out and it was impossible to do work in the villages, the *patwaris* retired to the headquarters of their Naib *Tehsildar* and began the preparation of the permanent record. With the aid of the fixed points, the measurements of the previous settlements were traced on the new sheets, and permanent khataunis were then made, of necessity without the knowledge of the landowenrs. This system would have been workable, provided the old measurements were correct; but, since in the maiority of the reverain estates of the Muzaffargarh District, the old measurements were wrong, it caused a sad mess, since even when there has been no change at all in the fields since settlement, the wrong measurements both alter the shapes of the fields and place them in wrong positions. Through the fault of the system, although an owner might be in undisturbed possession of his entire field, he would be shown as a trespasser in half the area in his possession, and as having lost the half of his rightful field from the trespass by his neighbour on the other side. The result was a nightmare map and a record full of numbers which had no existance in fact, but were created in a mad attempt to reconcile two sets of measurements, preference being given to that which was known to be wrong. Mercifully, the faults in this system were detected sufficiently early for the work to be corrected, or, where necessary, to be done a second time. Later, the following procedure was adopted; on the receipt of the plotting sheets from the Survey Department, sufficient fixed points were laid down to enable the *patwaris* to plot out the squares and fields of the old measurement. They then went to the spot and measured the estate in the ordinary way in the presence of the landowners, who being measurement began, were called on to declare any disputed boundaries. There never were any since in the riverian estates the memory of the owners is tenacious. and trespass is never permitted, no one ever tried to take advantage

of the old inaccurate measurements, and to do so would usually have been suicidal since invariably what would have been gained on one side of the number was lost of the other. Whereas by the old system the real fields found on the spot were changed to make them conform to the old mistakes, by the new system the records were brought into conformity with the real fields.

Remeasurement and revision.

Except in the Thal "*Janch Partal*" جانچ پڑتال fields were prepared in all estates and parts of estates safe from riverain action. In a few estates in the three Southern Tehsils rivision was found to be impossible, and remeasurement was made by squares. Everywhere else revision was found suitable, and was carried out in the usual way.

Oth r Maps

In addition to the copy of the maps prepared for the Tehsils tracings on wax paper were made for the *Patwaris* of all riverain estates for use in matters of alluvision and diluvion. Every *Patwari* was given a tracing on cloth for crop inspection,etc.

Index maps on the scale of 240 karams to the inch were prepared for each part sarkar; during the first year duplicates were also made, but later on were given up as unnecessary. Maps on the scale of 960 karams to the inch were made for each village notebook.

Record of Rights.

The following documents are included in the Record of Rights:—

(1) the preliminary proceedings, citing the notification of of the local Government sanctioning the new settlement, and giving the date of the beginning and end of the measurement and of the attestations by the different officials;

(2) the field maps.

(3) the genealogical table;

(4) the index of owners;

(5) the index of fields;

(6) the record of rights itself, including all mutations decided up to the time of attestation by the Naib *Tahsildar*.

(7) the mutations decided after the preparation of the last Jamabandi;

(8) the statement of revenue assignment;

(9) the statement of rights in wells;

(10) the order of the Settlement Officer determining the assessment, and;

(11) the Settlement Officer's order of the distribution of the assessment.

In addition, a separate record of rights was prepared for date-palms. The enumeration of the trees curtailed much time and trouble; and, where the palms grow thickly in large groups, the count probably was not accurate. In a number of estates the trees were counted three times or more, and the difference each time was considerable; as a result of these mistakes, the assessment actually imposed does not agree with the proposals submitted by the Settlement Office, nor with the orders, passed by Government. It was necessary not only to count the trees, but also to grade them into different classes, each tree paying a different assessment according to the class in which it was graded. Many mistakes in this classification, made either with intention or by accident, were detected, but many more must have passed unnoticed since supervision of the *Patwaris* was very difficult. The number of palm in the records rights, together with a comparision of the numbers of trees at last Settlement and at this, is given in the statement below:—

Name of Tahsil.	No. of Villages.	Number of old palms at settlement		Now.	
		Females.	Others.	Females.	Others.
Muzaffargarh.	332	469395	2096729	602372	135923
Alipur.	167	173116	563686	281095	127763
Kot Adu.	147	188345	827040	339513	424580
Leiah.	115	65932	9875	80517	12590
Total	761	896789	3497330	1303497	700856

At last settlement a separate jamabandi of mango trees was prepared, but with some misgivings the Settlement Officer recommended that it should be abolished and the details incorporated in the ordinary record of rights. Both this Jamabandi and that of the palms have never been properly maintained or checked, with the result that both were absolete long before the new settlement. Owing to the number of palms it was impossible to incorporate them in the ordinary record of rights, but mangoes are not very numberous.

At last settlement the statements regulating the labour to be supplied by each landowner for the maintenance of the canal were prepared; but, since the old system by which labour was supplied by the users of water has now been abandoned, this document was unnecessary at the last settlement.

Assessment Circles.

The assessment circles, as a rule, correspond to natural divisions of cultivation, and no change in them is either possible or desirable. In each of the four *Tahsils* there is an Indus Circle, in which cultivation depends mainly upon the flood from the river. In the Leiah Tahsil this circle is subdivided into *Kacha* and *Pakka* of which the former is the portion of the riverain tract which gets flood direct from the river; the latter is the area to the East of the largest creeks, and in a usual year receives spill from them, and not from the main river. This division into two circles is scarcely necessary, but is unobjectionable, and its retention is convenient. In Muzaffargarh and Alipur the estates which depend on the flood from the Chenab are grouped into Chenab circles. The Thal Kalan of Leiah and the Chahi Thal of Kot Adu are the unirrigated estates, which are pastoral rather than agricultural. The Jandi Thal of Leiah is distinguished from them by its greater fertility, crops of a better class and the dependence of its inhabitants on tillage rather than on flocks. The *Pakka* circles of the Three Southern *Tahsils* consist of the estates protected from direct river flood and irrigated by the inundation or weir controlled canals. The Nahri Thal of Kot Adu is a small circle of estates to which canal irrigation was extended between the first and second settlement; its Eastern border is Chahi, and can hardly be distinguished from the adjoining chahi Thal. On the West it merges into the canal irrigated *Pakka;* in the middle are strips of cultivation separated from one another by sand hills, most of the circles is the property of rich landowner who are developing it rapidly; if improvement continues at the present rate, it should be impossible after 20 years to distinguish this circle from the *Pakka,* but as yet there is a considerable difference between them, and the old circle had to be maintained. The adjoining circle across the Muzaffargarh border is the Thal Circle of that Tahsil, of which about half the estates cannot now be distinguished from their neighbours in the *Pakka,* though in the remaining half sand hills are high and plentiful, and the wild vegetation is that of the Thal, and not of the riverain. This circle also is improving, though less rapidly than the Nahri Thal; its retention was desirable, although its boundaries are far less marked than at last settlement.

The only circle which has been abolished is the old Chahi Sailab of the South of the Alipur Tahsil. At Settlement irrigation from the Suleman was very uncertain, and the whole of the Tahsil south of Jatoi and Alipur was liable to be swept by floods from

the Indus. The set of the river is now towards the West, the protective embankment has been improved and the irrigation from the Suleman is usually plentiful and timely so that, although the crops grown are inferior to those of the middle of the Tahsil, the estates included in the old circle are now definitely Nahri in character, and the retention of the old circle was unnecessary.

None of the riverain and *Pakka* circles is homogeneous since canal irrigation begins outside the protective embankments which intersect estates so that half of a village may be canal irrigated and the other half riverain; furthermore, creeks run through the centre of the district, and on their banks cultivation is riverain in character.

It would have been desirable to divide the *Pakka* of Muzaffargarh Tahsil into Chenab and Indus circles since the soils crops, water supply and methods of irrigation are different on the two sides of the Tahsil. The division would be most difficult to make as to the south of Muzaffargarh town many estates get irrigation from both series of canals; but the lumping of all the canal irrigated estates, irrespective of their source of irrigation into a single circle gives a false picture of the tract. The Settlement Officer did not realize this until he came to inspect the estates for assessment, by which time it was too late to submit any proposal for a sub-division of the old circle.

The following table shows the various assessment cicles with number of villages therein in each Tahsil of the district as recorded in the Settlement of the year, 1920-24:—

Name of Tahsil	Assessment Circle	Number of villages.
Leiah ..	Kacha ..	23
	Pacca ..	74
	Thal Jandi ..	45
	Thal Kalan ..	28
	Total ..	170
Kot Adu ..	Thal Chahi ..	25
	Thal Nahri ..	8
	Pacca ..	74
	Bet Sindh ..	28
	Total ..	155

Name of Tahsil	Assessment Circle	Number of Villages
Muzaffargarh	.. Thal ..	83
	Sindh ..	39
	Pacca ..	202
	Chenab ..	88
	Total ..	412
Alipur	... Sindhi ..	73
	Pacca ..	90
	Chenab ..	44
	Total ..	207

Soil Classification.

The so called classification of soils in the district has always been known by the method of irrigation. The simple classes are sailab (flood from the river or creek), Nahri (flood from an inundation canals), Chahi (by life from a well) and Barani (rain). When the land lies high above the canal or creek, the water has to be taken out by lift, and Sailab and Nahri change into abi and Jhalari. By combination from these simple classes, Chahi-Nahri, Chahi-Jhalari, Chahi-Sailab, Nahri-abi and Jhalari-abi are made.

Assumed yields.

The semi-permanent classes of soil recorded in the Jamabandies are of no use for purposes of assessment, which has to be made with the help of the entries in the records of crop inspections in

The assumed yields for the principal crops are given in the table below:—

Name of crop.	Chahi.	Chahi-Nahri.	Chahi Jhalari	Nahri	Jhalari	Chahi Sailab.	Sailab.	Barani	Abi.	Nahri Abi.	Jhalari Abi.
Rice ..	..	..	440-640	560-640	440-640	480	360-560	..	420-560	440-04	440-560
Jowar	200-280	160-240	200-280	160-240	200-240	160-280	140-240	..	160-240	160-240	200-240
Baira	160-240	160-240	200-280	160-280	200	160-280	140-280	..	160-240	160-200	200
Til	140-240	120-140	120-140	120-140	120-240	120-240	100-240	..	120-140	120-140	120-140
Cotten	80-200	140-180	140-200	100-200	100-140	120-200	80-120	..	120-140	100-140	100-140
Indigo	..	12-13	12-13	11-12	12-13	..	..	..	13	11-13	12
Wheat	320-360	340-400	320-400	180	280	320-360	200-260	..	280-380	280	280
Gram	160-240	160	160	160	160-200	200-240	160-220	..	160-200	160	160

The majority of these yields have come down unchanged since the first regular settlement, and have stood the test of experience. They have been changed only in a few cases where, at last settlement, some unnecessary refinements had been introduced in an uncommon soil classification. As it is, the table is too elaborate since such crops as Chahi-nahri rice and gram are an occasional accident, or more probably a mistake in classification by the *Patwari*. The assumed yields, as a whole, are very low in a good season, but the greatest difficulty in the district is that there are no true averages, and nature works by extremes so that there is no standard of outturn, either from year to year or from estate to estate. This uncertainty is the cause of the complaint against the rules for remission on account of crop failure.

Commutation prices

Commutation prices had to be fixed during the years of scarcity and of high prices which followed after the War; when at the time was selling at from Rs. 8 to 10 a maund with the prices of other agricultural produce in proportion, and it was impossible to foresee what real prices would be. Those sanctioned at the time of last settlement 1920-25 are shown in the table below:—

IN ANNAS PER MAUND.

	Leiah	Kot Adu	Muzaffargarh	Alipur
Rice	24	24	24	24
Jowar	30	30	30	..
Bajra	30	28	30	30
Til	80	80	80	30
Cotton	80	80	80	80
Indigo	..	1,024	1,024	1,024
Wheat	40	40	40	40
Barley	26	26	28	26
Gram	32	32	58	32
Ussun	49	49	..	..
Other oil seeds	49	49	49	..
Fodder	..	..	120	..

In view of the general uncertainty, little differentiation was attempted between Tahsil and Tahsil, except for a few crops of the Muzaffargarh Tahsil, which are grown for the most part in a

group of villages on the east bank of the Chenab near Multan town, and fetch prices not dreamed of in the rest of the district. In these villages green fodder is a most valuable crop, whereas in the rest of the district no more is grown than barley suffices for the cultivator's own working cattle. The prices in general are slightly below those assumed for the neighbouring district of Multan, in which the crops, as a whole, are rather better than in Muzaffargarh, and the facilities for marketing them are far superior. The calculated rise in prices since last settlement was 38 percent.

Land-lords Receipts.

Cash rents are taken in the case of only 1 per cent. of the cultivated area *i.e.,* from the market gardens round the towns and are useless as a guide for fixing profits in the remaining 99% of the District. The owners share of the produce had to be calculated on the assumption that all crops matured were paying rent in kind; since the rents of the most important corps very with the irrigation, as also do the deductioins, the calculation had to be made for each class of soil separately; for example nothing is paid from sailab wheat to the potter, and the allowance of green wheat to the tenants cattle is smalled than that from Chahi-sailab wheat Turnips and the early Kharif fodders which are grown entirely for the working cattle were excluded altogether from calculation, except in the Chenab villages near Multan city, where they are grown for sale in the market and are a valuable crop. The general result of the calculations was to show that in a normal year, owing to the higher rates of rent and smaller deductions, the profits to the land lord from crops which received no well water are not less than from well-irrigated crops. This conclusion is to some extent supported by the preference which the tenants show for sailab land; in the Muzaffargarh Chenab Circle; which except in a bad season is predominently sailab, not less than 80 percent of the cultivated area is held by tenants, or 30 percent more than the figure of the district, as a whole, and in all the riverain circles the percentage of land cultivated by tenants is higher than in the adjoining canal circles; it must, however, be remembered that most of the owners live in the *Pakka* circles and prefer to cultivate their home lands, and also that many tenants can afford the cheaper sailab cultivation who have not the cattle to work a well at a profit.

Owing to the configuration of the district, there is practically no canal-irrigated land situated at more than 10 miles distance from the river whence the canals are derived, and there are few long irrigation channels. In these circumstances, the cost of silt clearance is nowhere large, and falls either on the tenants or is done by the labourers, whom the owner is compelled in any case to keep for efficient cultivation; only in exceptional circumstances it is a special charge on the landlord. From the experience gained during the Settlement, there is no reason to suppose that cultivation through farm labourers is less profitable, than through tenants.

Grounds for Enhancement.

The one ground for enhancement common to the whole district is the undoubted rise in prices. In the Thal the general prosperity shown by the numerous new wells sunk, and old wells repaired and brought into use, is a further reason for raising the revenue, though, since the wells depend on flocks and the flocks in turn depend on the grass which springs up after rain, it is inadvisable to pitch the demand too high since the succession of three bad seasons might undo all the progress of the last 20 years; owing to the extension of canal irrigation in the Jhang District, threre are now no alternative grazing—grounds to which the sheep and goats of the Thal can be driven in a bad season. A large proportion of the cultivators of the Leiah Indus Circles have shared in the prosperity of the Thal and, though their flood supply is worse than at settlement, they are as a body probably more prosperous. In the Kot Adu Canal Circles there has been considerable increase in the cultivated area and a much greater increase in produce owing to the new *Dofasli* (دو فصلی) cultivation. Except in the depression round Sanawan town, where water-logging has caused deterioration in the soil and also in the health of the people, these two circles are very prosperious, and the standard of living is certainly higher than it was at settlement; wells crops, cattle and population are all better land, though the soil and water supply are such that the best crops can not be grown in this area and in fact water logging is destroying the few orchards which already exist, there is room for considerable enhan cement of the assessment. The Northern half of the Kot Adu Riverain Circle, is on account of water-logging, less good than it was at settlement, but south of Sanawan there has been an extension of canal irrigation, and the circle, as a whole is no worse than it was at settlement. Most of the revenue payers in it also own land in the *Pakka,* and have shared in the improvement on the Tahsil. The Thal Circle of Muzaffargarh has advanced with the adjoining part of Kot Adu, but, on the whole, to a less extent since it has more irrigation from tails of channels. The rest of the Muzaffargarh Tahsil has always been the most developed and richest part of the district, and such improvement as there may be in it must be intensive. There are signs that till 1915 improvement was rapid and widespread, but since that year it has not been maintained, mainly on account of changes in the canal supply, aggravated by sickness and high prices, and a long the Chenab by erosion and migration to the canal colonies. Even so, the palmgroves and orchards are more numerous than they were at settlement, particularly on the Eastern Side of the Tahsil. The North of Alipur has shared the fortune of Muzaffargarh but the South is considerably better than at settlement, though there are signs that the improvement will not continue since labourers will be attracted to the new colonies in the Bahawalpur State, Cash rents have increased largly in amount though not in area, but rents

in kind are the same as they were at Settlement; Indigo, which used to be the most valuable crop in the district, has almost gone, and its substitutes are of less value than it used to be. Any increase in cultivation has been followed by an increase in population, and the incidence on the matured area is one person to one acre (including fodders), and is rather heavier than it was at settlement; only in certain area is there evidence of a rise in the standard of living.

Since the whole of the Thal, the Alipur Tahsil and the riverain circles of the other three Tahsils were placed under fluctuating assessments, and an extension of canal irrigation in the Kot Adu and Muzaffargarh *Pakka* circles has been assessed to the special canal advantage rate, the greater part of any increase of revenue due to an extension in cultivation has already been taken, and the chief grounds for enhancement are the increase in palms and orchards and the rise in prices. Against this must be set the insecurity of the district, which is dependent on two uncontrolled rivers; the history of the last 20 years has shown what little reliance can be placed on them. On the whole, there was no scope for a large increase in revenue.

Circles under Crop Rates Methods of Assessment.

Experience had shown the general lines on which any assessment has to be made, and when the Settlement Officer joined the Settlement, the people as a whole were contented with the method by which their particular holdings were assessed, except for the general agitation, against well assessments. The obvious way of meeting this agitation, which inspections, as already described, showed to be just, was to extend to Alipur and the riverain circles of Kot Adu and Muzaffargarh the system adopted by Captain Crosthwaite in the Leiah riverain. No attempt was made to classify the wells, or rather an attempt which was made after the operations of the new settlement began was abandoned. A classification is, in fact, impossible if the people are called on to make it; the man of influence will invariably have his well written down serveral classes. Generally speaking, no official of lower rank than a Tahsildar has the necessary knowledge to classify a well, and to give one the power to do so is to invite to be corrupt. No senior official could possibly see the majority of the wells more than once, and the inspection of a single harvest in the Muzaffargarh District leads to no useful result. The Khasra Girdawaris show the area of the crops, but not their quality and anyhow an average of say, five years cropping seldom gives a true picture of the well. All that can be said safely about a well is that, so long as the flood supply is suitable, the owner will be able to afford good cattle, and will have sufficient manure to grow the best kinds of crops. The most prosperous owners cultivate cane, pepper, fruit and similar garden crops. The less prosperous grow as much wheat as possible; or, if the canal water be very abundent, rice

followed by gram, and if they can, enough of the Kharif grains to feed themselves or their labourers; on a well with a really bad flood supply the area of wheat is decreased, and cotton, *Bajra* and *Jowar* are grown in its place. The changes in cultivation caused by a change in flood supply are well shown in Kot Adu and in the centre of Alipur, in the latter area cane has been replaced by wheat, and rice by wheat cotton, both poor crops grown in brackish soil in Kot Adu in different wheat has been replaced by excellent rice and gram. The Alipur wells had been assessed on the cane grown at Settlement, with a result that 20 years later the bad wheat now grown was paying about three times what it should. In Kot Adu the assessment based on the poor wheat was for less than what the rice and gram should have been paying. The wells thus group themselves by their crops, and if a reasonable rate be worked out for each class of crop, a well should continue indefinitely to pay a fair assesment whatever accident may be fall the flood supply.

Classes of Crops.

The crops were divided into four classes; in the first were placed cane and the different garden crops in the second wheat, indigo, cotton and rice in the third the inferior food crops such as barley, bajra, jowar and grams; in the fourth fodders and such indifferent food crops as sanwank and smukka. The general assessment was Rs. 4 an acre on Class I, Rs. 2 on Class II, Re. I on Class III and annas 8 on Class IV, but was varied according to the different circumstances of the circles, and in some circles from estate to estate. In exceptional circumstances sanction was obtained from a reclassification of crops, *e.g.*, in the villages near Multan town, where fodder are mostly grown for sale; these were placed in the third class, which in the circle pays as much as Rs. 1-12-0 an acre. In Alipur, round the town of that name, there are some magnificent estates of which the silt has been deposited by the Chenab, and where almost unlimited manure is obtained from the town; three miles away is a strip of arid sand which was once a bed of Indus; the crop classification based on methods of cultivation is the same in both areas, but it was found impossible to frame rates which could suit both sets of estates, and throughout Alipur the rates imposed vary greatly. Generally however, throughout one circle, though the yield of one well will be much better than that of its neighbour for the same variety of crop, all that can be predicated is that the quality of the outturn is an accident over which the cultivator has no control, and flat rates were imposed on the whole circle. A great advantage of this system is that it should act as kind of barometer to record changes in canal supply, and any continuing change on any system should very quickly come to the notice of the responsible authorities; a great disadvantage is that attempts will certainly be made to get the patwaris to record superior crops as inferior.

The System by which the Thal was assessed at last settlement is excellenty suited to its peculiar conditions, and the only change made was to increase the assessment.

Circles under Fixed Assessment.

The Settlement Officer was anxious to assess the Kot Adu Pakka and Nahri Thal by crop rates; his reasons were that the present double cropping is the result of an uncontrolled canal supply he saw indications that, if the supply continued as he found it, water logging would spread and cultivation would again change. His proposal did not commend itself to the higher authorities, and still lies to the revenue payers, who rightly feared that the imposition of crop rates on their double cropping would cause a very large increase in their present assessment. They failed to understand that their assessment was in any case to be increased, and that a fixed assessment, if wrong, is in the long run more onerous than crop rates. In the Muzaffargarh Tahsil also he would have preferred on assessment by crop rates mainly because of the great deterioration which he found in many of the estates irrigated from the Chenab system the owners were, however, unwilling to change the system; their chief reason being that they thought their condition could not get worse, and would improve largely after they were given controlled irrigation. The fixed assessments were, therefore, maintained in these two tahsils in all the estates where he found them. At the instance of the revenue-payers the fixed assessments imposed on the small area in the Alipur Tahsil were abolished. In both Kot Adu and Muzaffargarh the assessment, though nominally by estates, had to be made by holdings. The owners were called together, and, after the Settlement Officer had announced his assesssment on the villages as a whole, it was then and there broken up and distributed over the different wells; the method adopted was to take the crops grown on each well during the past five years, and to apply crop-rates to these; sometimes, when the estate was irrigated from two or more channels, it was necessary to frame two or more sets of rates. Wells of which the lands lie high or low were sometimes assessed at higher or lower rates than that other wells in the same estates. So far as possible, he got the landowners to give their own assessment of what the different wells should pay; in places they had prepared elaborate gradation lists of the wells, and he was glad to find that his own method usually agreed with the estimate of the land-owners, except for wells belonging to lambardars, retired patwaris and others of the same kinds whose wells were always considearbly better by his system than by that of the people. The labour of assessing several thousand wells in this way was enormous, but he could devise no other system since the soil classification is of no help in the distribution of the revenue.

In the summer of 1924 the Sanawan protective embankment was breached by an unusually high flood from the Indus, and the

greater part of the Kot Adu Pakka, the Eastern part of the Nahri Thal and a long strip running across the Muzaffargarh Pakka were flooded. The Settlement Officer had to announce his assessments of these circles in the following winter, by which time it was impossible to estimate the permanent effect, if any, of the flood. After he had gone on leave, the Kot Adu people clamoured for the imposition of crop-rates on the whole of their tahsil outside the Thal, and their request has been granted. In the Settlement Officer's opinion, it was wise. though he wished they could have made up their minds two years earlier. The result is that the only fixed assessment remaining in the district is that of Muzaffargarh,Thal and Pakka Circles. The revenue payers of these two circles are now beginning to agitate for assessment by croprates; the truth is, that, unsatisfactory as crop rates in many ways are, particularly in the opportunities which they give for petty corruption and extortion, they are really the form of assessment best suited to a very insecure tract like Muzaffargarh. The fixed assessments of the last two settlements were to the advantage of the revenue payers so long as the canal supply was being improved, but, with the rivers as they are now, a fixed assessment, however, lenient, is felt as a hardship. „

Pitch of New Assessment.

In no settlement has the assessment of the district, as a whole, ever approached full half-net assets, though the proportion taken has varied widely in the different circles from 78 percent. to 98 percent. The Settlement Officer too was faced with the difficulty that in a number of circles he was unable to recommend the full enhancement which was justified by his calculation since it was due entirely to the estimated rise in prices which, in the peculiar circumstances of some circles, had not benefitted them much. While he was submitting his proposals, the rate of assessment in all future settlement was reduced from one half of the calculated full net assets to 1/3rd; and although the settlement of Muzaffargarh has begun some months before the resolution of the Council was accepted by the Punjab Government as a matter of grade, Muzaffargarh, as being probably the poorest and most backward district in the Province, was given the concession, of an assessment based on 1/3rd net assets, though the only tahsil for which he worked out the calculation by this standard was Muzaffargarh. He had calculated the half net assets of the other three tahsils and the 1/3rd net asset of Muzaffargarh to be a little over 11 lakh in comparison with an existing assessment of Rs. 7,67,000. The change in the standard of assessment wiped out practically all the increase which he had estimated from the rise in prices, with the result that the new assessment is estimated at a little under Rs. 8,27,000. Since the whole district, with the exception of two circles in the Muzaffargarh Tahsil, is now under some form of fluctuating assessment, the annual fluctuations in revenue must be

considerable. The table on page 263 show the previous demand, that estimated at half-net assets and the demand finally imposed.

Assessment on Mangoes. The existing assessment on mangoes has been continued and extended to new trees. The rates imposed were in general from annas 4 (25 paisa) to Re. 1 a tree, the amount imposed varying with the situation of the orchard, its distance from a market and the quality of the trees. There are a few very famous trees, mostly in the village of Butaphar near Muzaffargarh town of which the fruit is sold for seed; these trees have been paying assessments of more than Rs. 50 each, which have been maintained. Newly planted orchards in the circles under crop-rates will pay as first-class crops.

Assessment on Palms. The assessment on date-palms was continued; the difficulty of doing this work in a satisfactory way has already been mentioned; at last settlement 900,000 female palms were counted and nearly 3,500,000 males and neutres. At this settlement 1,300,000 female trees were counted and 700,000 others. The trees were classified according as to whether they grew among houses, where they are carefully tended or on uninhabited wells, where they get less attention; or among fields, where they get little care, but benefit from the cultivation of the land; or in the waste, where their fruit is seldom picked. Rates, which varied usually from (3 annas to six pies), were placed on the trees of the different classes, though in a few estates. Where the dates are of unusual values, heavier assessments were imposed. Generally speaking, the dates grown on the Chenab side of the river by far the best, both in themselves on account of the nearness of good markets.

Assessment on Grazing. The assessment on grazing was maintained. Outside the Thal the owners had been forbidden to cut trees growing in the waste without permission from the tahsil. The object of this restriction had been to prevent the destruction of timber, required as fuel in the old days when the Indus flotilla still plied on the river; it had become almost a dead letter, though occasionally used as an engine of oppression by the tahsil subordinate staff. It has now been abolished.

Dates of Payment of Revenue. In all the estates assessed by crop-rates the revenue on the matured crops is paid after each harvest. In the estates under fixed assessment instalments have been fixed to meet the wishes of the revenue-payers; in most cases although the rabi is the more valuable harvest of the two, they preferred to pay two equal instalments. The dates for the Kharif are from the 15th of December to the 15th of January, and for the rabi from the 15th

of June to the 15th of July. The revenue on the palms is to be paid by the 15th of August, by which date the crops had ripened and been sold. The assessment on mangoes is payable with the kharif.

Assigments of Land Revenue.

The assignments of land revenue in Muzaffargarh District were generally very small sums in favour of religious or charitable institutions. Some of the assignments were forefeited in the previous years in cases where the institutions for the upkeep of which the grant was made had long been allowed to fall into ruin and the assignees were spending the revenue on themselves. After the promulgation of West Pakistan Land Reforms Regulation No. 64 of the year 1959 all assignments of Land Revenue have since been stopped in this District.

Period of Settlement.

The Settlement of Muzaffargarh District was completed between 1920-25 and the period of settlement was fixed for 40 years *vide* Government memo. No 2939-R, dated the 19th August, 1933. This term (will be expiring) in the year 1956. It was stipulated in the last Settlement Report that this term of settlement would come to an end before the expiry of 40 years in case the area of this District was extended to irrigation facilities by means of weir controlled canals if introduced earlier at the advent of any irrigation project. Although the term of 40 years has not since expired but three irrigation projects namely: (i) Haveli Project-Rangpur canal (ii) Thal Project and (iii) Taunsa Barrage Project have been introduced in this District in the years 1938-40; 1950-52 and 1956-58 respectively. It appears that no increase in the assessment was made at the time of the introduction of Haveli Project-Rangpur Canal in the areas irrigated by this system. The previous fluctuating assessment of the last settlement of the year 1920-25 was allowed to continue and only the occupier rate (Abiana) of the Rangpur canal was increased by special orders of the Government. Again in the year 1932 about 211 villages from the various assessment circules of Muzaffargarh Tahsil, were transferred from fixed assessment to fluctuating assessment with effect from Rabi 1933 *vide* Government memo. No. 3040-R, dated the 17th December, 1932. The rate of assessment, however, remained the same, the maximum being Rs. 4/- and minimum Re. 1/- per acre of the irrigated area. In some cases, the minimum assessment per acre, was as low as /8/- (50 paisa). At the advent of the Thal Project a special assessment in Leiah and Kot Abu Tehsils of Muzafiargarh District was made by the Government with effect from Kharif 1952 for a period of 10 years *vide* former Punjab Government memo. No. 3848/54-1610-R, dated the 2nd July, 1954. All areas irrigated by the Thal canal in the above mentioned two tehsils of the District were assessed to land revenue and malikana in the manner indicated below:—

(1) All crown waste lands not previously assessed to land revenue at Rs. 2/- per matured acre on each harvest.

(2) All crown waste lands already assessed to land revenue were required to continue to pay the assessment but when the same was allotted, the allottee was required to pay a special malikana equal to the differences between the existing rate of land revenue of Rs. 2/- per matured acre on each harvest.

(3) The propriatary land acquired by the Thal Development Authority and then realloted was treated as (2) above with the only difference that special malikana of it would go to the T.D.A. and not to Government.

(4) All such allotted land were required to pay in addition, a general malikana at Re. 1/- per allotted acre per harvest. The amount of malikana realised in respect of land acquired by the T.D.A. was to go the funds of the Authority, while the amount in respect of the Crown Land was to be credited to provincial Revenue

(5) Propriatary land allotted to the old proprietors by the T.D.A. as compensatory grants being the area left with them by the Authority as a result of its acquisition proceedings were required to pay the same land revenue as before even if they receive irrigation. These lands were exempted from the payment of any malikana whether general or special.

(6) The grazing Jama was deemed to be included in the demand.

In regard to the barani crops raised by the allottee on the crown waste lands or propriatary lands acquired by the T.D.A. within the irrigation limits of the Thal Project, the land revenue and malikana was assessed in the following manner:—

	Land Revenue	*Malikana*
(*a*) Land not assessed to land revenue. ..	Re. 1/- per matured acre ..	Re. 1/- per allotted acre per harvest as general malikana.
(*b*) Land assessed to land revenue ..	Land Revenue already assessed ..	Re. 1/- per allotted acre as general malikana plus the difference in assessed land revenue and Re. 1/- per matured acre on each harvest as special malikana.

In case the assessed land revenue was more than Re. 1/- the existing land revenue rate was to be continued.

The occupiers rates of the different canals were, however, revised by the Government periodically. In the year 1952 the schedule of occupier's rate applicable to the Muzaffargarh inundation canals was revised w.e.f. Rabi 1952-53 *vide* Government notification No. 41327/R/167/1900, dated the 15th September, 1950. Again in the year 1959 at the time of the introduction of Thal and Taunsa canals, the schedule of occupier's rate was revised vide notification No. 10/55/S.OVIII(I)/59, dated the 23rd November, 1959. A further amendment in the occupiers rate of the various canal of the District has been introduced w.e.f. Kharif 1963 *vide* Government notificatioin No. 2/19-S.O.(Rev.)/63, dated the 5th December, 1963. For details of occupiers rates imposed on the irrigated areas of the Rangpur, Thal and Taunsa and Inundation canals of the District, reference may be made to the schedule of occupiers rates mentioned above. In districts of Sialkot, Sheikhupura, Gujrat, Sargodha, Jhang, Multan, D. G. Khan, Dera Ismail Khan, Bannu, Kohat and Mianwali where the period of the existing assessment had expired, the Government had increased the land revenue (both fixed and fluctuating) by 25% above the existing rates w.e.f. Rabi 1962 *vide* its notification No. 1994-62/975-R(S), dated 20th June, 1962. Since the term of settlement in Muzaffargarh District has not yet expired, this 25% increase of land revenue has not been imposed in the District so far.

The question of imposition of water advantages rate in the areas already assessed to land revenue and special assessment in other areas of the District which have been developed by the recent irrigation facilities is still under consideration of the Government and final orders in this respect are still awaited.

The following table will show the maximum, minimum and average assesment (fluctuating) per acre of irrigated land of the various assessment circles in different tehsils of the District:—

Assessment Circle	No. of villages.	Assessment Rate 1st Class	2nd Class	3rd Class
Sind	39	1/10/-	1/-	-/8/-
Chenab	88	4/-	2/8/-	1/6/-
Pacca	8	4/-	2/12/-	1/8/-

Note:—83 Villages of Thal, 2 of Sind, 1 of Chenab and 128 of Pacca assessment circles respectively were converted to fluctuating assessement from fixed one. In their cases the maximum rate of assessement per acre was Rs. 4/- and the minimum was Re. 1/-

Kot Adu Tehsil — تشخیص بطریق تھل

Thal Chahi	25			
Thal Nahri	8	1/8/-	1/-	-/10/-
Pacca	74	1/12/-	1/6/-	-/14/-
Sind	48	1/8/-	1/-	-/8/-

Ali Pur Tehsil — *Assessment Rate*

Name of Assessment Circle.	No of villages.	1st Class	2nd Class	3rd Class	4th Class,
Sind	51	4/-	1/-to1/8/-	1/-	-/8/-
Chenab	66	3/-	1/- to 2/-	1/-	-/8/-
Pacca	90	4/-	1/- to 1/12/	1/-	-/8/-

Leiah Tehsil

Kacha	23	1/10/-	1/1/-	-/8/-
Pacca	74	——Do——		
Thal Jandi	45	The assessment of these villages is in accordance with the special assessment announced vide Government notification No. 3848-54-1610-R, dated the 2nd July, 1954, the details of which have already been mentioned above.		
Thal Kalan	28			

As has already been stated in the foregoing paragraphs of this chapter, the last settlement in Muzaffargarh District was completed in the year 1925-26. The next settlement operations are due in the year 1965. The new statements of milan rakba with the minor details of cultivated, uncultivated, chahi, nahri etc., and the demands new and old will be prepared after the new settlement operations. However, the statements pertaining to the last settlement of this District are attached herewith for facility of reference.

Chapter II-B Land Revenue.

Millan Rakba, of yearly statement of Area of Muzaffargarh District (Tahsildar) of new settlement, Muzaffargarh District, 1925-26.

Name of Tahsil	Total area	Forests	Uncultivated other than Forests			Cultivated Area.						
			Not available for cultivation	Aavilable for cultivation.		Chahi	Chahi Nahri	Chahi Jhalari	Nahri	Jhalari	Chahi Sailab	Sailab
				Un-appropriated Government Waste	Other							
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Leiah ..	.. 15,45,080	..	51,680	2,17,400	11,01,884	42,359	576	..	394	1	59,056	63,708
Kot Adu	.. 8,43,783	9,830	57,666	1,48,216	4,80,823	13,547	56,232	1,598	39,012	488	15,655	20,497
Muzaffargarh	.. 5,83,037	11,266	1,80,286	21,002	1,73,230	3,095	98,025	600	31,675	35	15,385	38,633
Alipur ..	.. 5,87,445	27,255	1,13,872	15,873	2,29,675	167	70,891	27	48,811	8	13,055	56,394
Total	.. 35,59,345	48,351	4,03,504	4,02,491	19,85,612	59,168	2,25,724	2,225	1,19,892	527	1,03,151	1,79,232

Chapter II-B Land Revenue

Milan Rakba, or yearly statment of area of Muzaffargarh District (Tahsildar) of new setelement, Muzaffargarh District, 1925-26.

Name of Tahsil.	Cultivated Area.					Wells Irrigated Land				Kacha wells dhinklis and jhallars in use during the year	Remarks.
	Barani	Abi	Nahri Abi	Jhalari Abi	Total	New or old wells made fit for use during the year.	Fallen or become other-wise unit for use during the year.	Total in use or fit for use.			
								In use.	Not in use	Total	
	Acres	Acres	Acres	Adres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Leiah	8,022	..	..	..	1,74,116	68	17	6,089	717	6,806	658
Kot Adu ..	224	..	..	..	1,47,248	72	18	5,095	870	5,965	671
Muzaffargarh ..	8	7,092	26,73	32	1,97,253	52	22	6,567	980	7,547	702
Alipur	..	7,331	4,086	..	2,00,770	49	47	4,650	1,503	6,153	666
Total ..	82,54	14,423	6,759	32	7,19,387	241	104	22,401	4,070	26,471	2,697

Statement showing old and new demands.

Tahsil	Circle	Previous demand			Calculated demand.			Fixed.		Fluctuating.				
		Fixed	Fluctuating	Total	Land Revenue	Grazing	Gardens	Dates	Total	Land Revenue	Grazing	Total	Total	½ or ⅓ net assets.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Leiah ...	.. Kachha ..	46	7,038	7,084	..	..	..	206	206	Not available	810	Not available	Not available	20,279
	Pakka ..	2,091	77,804	79,895	..	..	..	4,965	4,965		2,711			1,54,374
	Jandi ..	1,791	12,458	14,249	..	2,263	..	200	2,463	Do.	..	Do.	Do.	30,972
	Thal Kalan ..	4,893	5,769	10,662	..	7,172	..	..	7,172	Do.	..	Do.	Do.	13,520
	Total ..	8,821	1,03,069	1,11,890	..	9,436	..	5,371	14,806	1,43,837	3,521	1,47,358	1,62,164	2,19,145
Kot Adu	... Thal Chahi ..	3,382	3,200	5,582	..	2,972	..	87	3,059	3,922	..	3,922	6,981	5,793
	Thal Nahri ..	10,261	..	10,261	..	960	..	258	1,218	13,261	..	13,261	14,479	16,562
	Pakka ..	99,651	..	99,691	..	2,346	56	14,680	17,082	1,20,485	..	1,20,485	1,37,567	1,67,055
	Sindh ..	..	32,603	32,603	..	..	..	3,687	3,687	36,620	2,215	38,835	42,522	50,706
	Total ..	1,12,294	35,803	1,48,097	..	6,278	56	18,712	25,046	1,74,288	2,215	1,76,503	2,01,549	2,40,116
Muzaffagarh	.. Thal ..	31,549	277	31,826	37,564	349	..	3,470	41,383	..	..	..	41,383	37,517
	Sindh ..	878	15,949	16,827	800	..	..	2,190	2,990	18,132	1,777	19,909	22,899	18,890
	Pakka ..	1,79,667	5,906	1,85,573	1,72,152	4,392	..	24,587	2,01,131	..	..	..	2,01,131	1,73,050
	Chenab ..	13,382	53,939	67,321	13,594	..	..	5,085	18,679	87,838	1,493	89,331	1,08,010	1,08,291
	Total ..	2,25,476	76,071	3,01,547	2,24,110	4,741	..	35,332	264,183	1,05,970	3,270	1,09,240	3,73,423	3,37,748
Alipur ..	.. Sindh ..	3,371	29,225	32,596	..	Not available	..	Not available	Not available	Not available	..	Not available	Not available	Not available
	Chenab ..	6,958	52,696	59,654	..		..				..			
	Pakka ..	7,540	1,05,623	1,13,163	..	Do.	..	Do.	Do.	Do.	..	Do.	Do.	Do.
	Total ..	17,869	1,87,544	2,05,413	..	2,000	..	12,000	14,000	2,05,738	..	2,05,738	2,19,738	3,08,010
GRAND	TOTAL ..	3,64,460	4,02,487	7,66,947	2,24,110	22,454	56	71,415	3,18,035	6,29,833	9,006	6,38,839	9,56,874	11,05,019

Chapter II-B, Land Revenue.

Statement showing old and new demands.

		Demand imposed												
Tahsil	Circle	Fixed					Fluctuation				Propertion of ½ or ⅓rd net assets taken	Percentage enhancement of columns 24 and 5	Incidence of column 24 per matured acre	Remarks
		Land Revenue	Grazing	Gardens	Dates	Total	Land Revenue	Grazing	Total	Total				
1	2	16	17	18	19	20	21	22	23	24	25	26	27	28
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.A.P.	
Leiah	..Kachha ..	..	..	..	207	207	8,232	868	9,100	9,307	46	31	1-3-7	
	Pakka ..	..	..	257	4,885	5,142	88,948	2,608	91,556	96,698	63	21	1-3-3	
	Jandi ..	..	2,166	...	198	2,364	16,671	..	16,671	19,035	62	34	0-13-3	
	Thal Kalan ..	..	7,264	..	..	7,264	7,753	..	7,753	15,017	111	40	0-14-7	
	Total ..	..	9,430	257	5,290	14,977	1,21,604	3,476	1,25,080	1,40,057	64	25	1-1-7	
Kot Adu	..Thal Chahhi ..	..	3,288	..	25	3,313	3,903	..	3,903	7,216	125	29	1-2-5	
	Thal Nahri ..	..	841	..	301	1,142	8,438	..	8,438	9,580	58	—6	1-1-8	
	Pakka ..	..	2,277	56	14,622	16,955	85,760	..	85,760	1,02,715	61	3	1-11-1	
	Sindh ..	..	..	..	3,551	3,551	31,281	2,269	33,550	37,101	73	14	1-5-11	
	Total ..	..	6,406	56	18,499	24,961	1,29,382	2,269	1,31,651	1,56 612	65	6	1-8-5	

Muzaffargarh	Thal	36,895	353	37	3,202	40,487	342 10	..	342 10	40,829 10	109	28	2-6-2
	Sindh	944	..	..	2,190	3,134	16,176 1	1,616	17,792 1	20,926 1	111	24	1-9-3
	Pakka	1,58,596	3,590	7,629	24,696	1,94,511	6,472 265	836	6,608 265	2,01,119 265	116	9	2-11-7
	Chenab	9,971	182	852	5,085	16,090	78,050 12	1,212	79,262 12	95,352 12	88	42	2-1-7
	Total	2,06,406	4,125	8,518	35,173	2,45,222	1,01,040 288	2,964	1,04,004 288	3,58,226 288	106	19	2-6-3
Alipur	Sindh	..	740	..	611	1,351	22,789	..	22,789	24,140	Not available	—26	1-0-9
	Chenab	..	554	..	4,705	5,259	48,510	..	48,510	53,769		—10	1-2-6
	Pakka	..	706	324	8,833	9,863	83,998	..	83,998	93,861	Do.	—17	1-4-1
	Total	..	2,000	324	14,149	16,473	1,55,297	..	1,55,297	1,71,770	56	—16	1-3-0
GRAND TOTAL		2,06,406	21,961	155	73,111	3,10,633	5,07,328 288	8,709	5,16,032 208	8,26,665 288	75	8	1-9-3

RATES OF GRAZING FEES.

TAHSIL	RATE PER HEAD OF		
	Cow-baffalo not exempt.	Cow not exempt	Sheep and goat not exempt.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
Leiah	0- 8- 0	0- 4- 0	0- 0- 6
Kot Adu	0- 10 -0	0- 5- 0	0- 1- 0
Muzaffargarh	0 - 8-0	0- 4- 0	0- 1- 0
Alipur	0- 8- 0	0- 4- 0	0- 1- 0

Paragraph 64 (*a*) of the Leiah Assessment Report may also be seen for remissin in bad years.

CHAPTER—II SECTION—C.

MISCELLANEOUS REVENUES.

Excise and Taxation.

Excise Consumption.

Muzaffargarh district is one which even in prepartition days had an overwhelming majority of the muslims against a nominal representation of non-muslims, who after independence have left the district. The Muslim populations of the district are mostly orthodex in their believes and have a solid attachment with their religion. The consumption of excisable articles in the district, therefore, is not much.

Opium.

There are 8 opium venders in the district and the licences are auctioned for the sale thereof from year to year and normally 10% of the annual quota is reduced every year.

Bhang-Drugs (Hemp)

There are 9 Bhang venders in the district, like opium they are given lease by auction every year. Bhang is locally known as "Savi". The people of the district, particularly locals, use it in large quantity in summer more as a cold beverage against the scorching heat of the sun than for intoxication. The hamp for sale is transported from the submountaneous tracts of the former province of Punjab, the districts of Sialkot and Rawalpindi

Charas.

Charas was banned in the district in the year 1943 and the prohibition of its consumption came into force in the year 1945 (as per report of the E.T.O. Muzaffargarh). The cases of illegal consumption are still detected.

Popy

Popy cultivation is not allowed in the distriict since long. The cultivation of the hemp plant is prohibited in the district except at religious institutions under special licences.

Sprit Liquor.

There is only one licenced vender in Muzaffargarh district located at the district headquarters.

Prohibition

Prohibition was promulgated by a general order of the Governfent in the year 1949. Only those persons who are recommended the use of liquor on medical grounds, or those who are non-muslims, are entitled to purchase it from the licenced vender on permits. The sale of liquor in this district is meagre as compared with other districts of the former Punjab Province, Illicit distillation in the district is also nominal.

Excise and Taxation Department Staff

There is an Excise and Taxation Officer with one Excise Sub-Inspector; one Taxation Inspector; two Taxation Sub-Inspectors, incharge of the district. This department is also concerned with the administration of the West Pakistan Urban Immoveable Property Tax Act, 1958; West Pakistan Entertainments Duty Act, 1958 West Pakistan Tobacco Vend Act, 1958; West Pakis-

tan Finance Act, 1962 West Pakstan Motor Vehicles Taxation Act, 1958, and the Stamp Act 1934. With the exception of the Stamp Act, all other administrative duties under the above mentioned Acts are entrusted to the Taxation Inspectorate staff under the administrative control of the Excise and Taxation Officer. The duties under the Stamp Act are perfomed by the Excise Inspectorate staff.

Table 41 of Volume B gives further statistics relating to Excise.

Stamps.

The Income from the sale of miscellaneous Court fee and non judicial stamp along with the expenditure on the agency employed for the sale of stamp for the year 1961-62 is given below:—

	Income	Expenditure on the agency employed.
	Rs.	Rs.
1. Miscellaneous Court Fee	1,61,278.00	634.00
2. Non-Judicial Stamps	4,53,732.00	6,278.00

Venders.

There are 27 venders in the district of whom four are ex-officio (Treasurers); 18 private persons and 5 branch post masters. The four ex-officio licencees sell non-judicial and court fee stamps above the value of Rs. 100/-. Out of 18 private licencess, 9 licencees sell both non-judicial stamps only. The Excise Sub-Inspector inspects the registers of these venders except those of Branch Post Master who are under the postal Department and four Treasurers who are the employees of the local Bank and are not paid any commission on the sale of these stamps.

Incom tax

Income Tax in the district is collected by the Central Government of Pakistan through the Treasury Officer, Muzaffargarh. The assessment of Income Tax is carried out by the Income Tax Officer, B-Ward, Multan, who is incharge of Muzaffargarh and Dera Ghazi Khan Districts.

Years.	Total receipts in Rs.	Number of cases.
1957-58	87,700.00	235
1958-59	13,700.00	246
1960-61	78,321.00	240
1961-62	65,970.00	230

CHAPTER III—ECONOMIC.

Section A—Agriculture.

Agriculture General Condition.

The Agriculture is the premier industry of the District. Out of the total area of 35,64,257 acres including forests it has culture able area of 28,84,102 acres and an area of 12,07,564 acres is actually under cultivation. The soil varies from alluvium sand to coarse sand. The different degree of admixture of sand and silt, the thick layer of clay and the presence of the salt in the soil here and there, ordinarily do not constitute ideal conditions for agriculture. Compratively speaking the soil is good. Agriculture, primarily depends more on irrigation than on soil.

Agricultural Division.

The district can be conveniently divided into four major zones for agricultural purposes:—

1. Riverain tracts.
2. Sub-Riverain tract or central irrigated tract.
3. Thal Nehri.
4. The Thal Kalan.

Riverain tract.

This tract can be sub-divided into Indus Riverain tract and Chenab Riverain tract. Floods, are more common due to the over flowing of the banks in summer on account of enormous quantities of water as a result of snow melting and generally, spread over the low lying tract in between the main stream and Sanawan-Embankment. Conditions, are further accentuated on account of hill torrents which descend from Suleman range facing Kot Adu Tehsil. They push the Indus main stream towards Kot Adu and occasionally cause erosion on its Eastern bank. Agriculture is practised either on high lands or solitory islets where rabi crop can be matured without well irigation or in those places where river water flowing in creeks can be tapped in winter. Alluvion and diluvion throughout this tract is so frequent. Permanent habitation as such is difficult. Indus water carries a good deal of sand which sometimes damage the soil. Similarly strong currents wash away silt. Soil changes in quality from year to year, the cultivation is, therefore, uncertain. There are, however, very fertile scattered plots in the tract?

Cultivation generally depends on sailab in areas where summer floods leave enough moisture for mature of Rabi crops without artificial irrigation. Where the intensity of flood is less, the cultivation is possible in those tracts where artificial irrigation is possible

either through wells or Jhalars put up on creek. Previously large number of dams used to thrive on Lala and Boda creeks which flow from River Indus through Bhakkar Tehsil but since 1950 the old system of constructing dams has ceased to exist; creek irrigation, however, has become important in another way that it provides suitable avenues for putting Jhallars. Near Daera Din Pannah a Regulator had been constructed on Lala creek from where inundation canals were taken off. These creeks enter Leiah Tehsil from Bhakkar Tehsil and water is generally utilised in both the Tehsils.

Thal Nehri

The construction of Taunsa Barrage, however, has greatly affected the sailab irrigation firstly because most of the area facing Kot Adu has become pond area where cultivation has become impossible and secondly because the volume of floods down stream below head works has deminished.

The Chenab Riverain tract.

This tract is comparatively narrow. The bed of the river is generally deep and thus floods do not spread in cultivation area. General tendency of the river except where it is restrained by protective works for instance Railway Bridge near Chenab West Bank Railway Station, is to swing to the West. The cultivation depends upon the moisture contained in the soil. Quality of silt in this tract is better as compared to that of Indus tract. There is likelihood that after the completion of replocement work the supply of spill water from Chenab will become more uncertain.

The Sub Riverain Tract or Control Canal Irrigated Area.

Lying in he shape of an inverse triangle between the two riverain tracts, roughly inside the great protective embankments in the East and West and sand dunes in the North, is the Central Tract which is irrigated from weir controlled canals and contains the best land in the district. This tract used to be irrigated formerly by inundation canals. The soil varies in richness from place to place generally from East to West. Most of the area in this tract is water logged and salinity affected. The oldest settlement of the district are found in this tract and unless serious efforts are made to fight out salinity and water-logging the productivity of the land will continue to deteriorate.

Thal Nehri.

The name is really a misnomer as canal irrigation has been greatly extended to this tract. Stretching from the boundry of Mianwali Muzaffargarh districts on the North upto middle of Muzaffargarh Tehsil in the South, it roughly lies between Muzaffargarh Kundian Railway line in the West and Muzaffargarh Mianwali road in the East. It includes the Old Revenue Assessment Circles of Tral Jandi in Leiah Tehsil, Thal Jal in Kot Adu Tehsil and part of Thal Kalan and Thal Rode in Tehsil Leiah and Kot Adu. It also includes the Muzaffargarh Thal.

The soil contains 15 percent clay, 21 percent silt and 61 percent fine sandy loam with 3 percent coarse sand. The entire area where-ever canal irrigation has been extended lends itself admirably to the cultivation.

Thal Kalan.

Removed from the rivers, in between Muzaffargarh-Mianwali road in the West and Jhang-Muzaffargarh road in the East, there is high sandy table-land called Thal, presently beyond the reach of canal water. This tract is infested with sand dunes interspersed by hard land known as "Luk" or Patties. Water is scarce and rainfall is uncertain. Cultivation thus is possible on wells alone. Barrani cultivation is also practised when-ever and where-ever there is good and timely rain. Water table is generally very deep and ranges from 60 feet in winter to 30 feet in summer. The residents are mainly pestoral.

Soil classification in each Tehsil.

There are considerable variations of soil in the Tahsil. For instance, there is very sandy soil with 0.5 to 3% clay, ordinary sandy soil with 3 to 10% clay, sandy loams 10 to 15% clay, clay loams 15 to 25% clayer and clayer with 25 to 35% clay. Very sandy soil is light to plough lacks vegitative matter and gives poor returns. Ordinary sandy soil is open in texture and easily drained. Dung and other organic matter decompose quickly and hence is known as hungry soil. Sandy loams consist of fine texture and is capable of growing any crop. It responds to heavy dressing of manures and is good for gardening and vegetable. Most of the lands of Leiah Thal Jandi and Thal Rode belong to this category. Bara soil is also found. It is alkaline and unfit for crop production. Application of gypsum followed by flooding and planting of trees improves it. But the classification of the soils in the district has always been according to the method of irigation, textural differences or physical classification has always been of little use. The simple classes are sailab (flood from river or creek), Nahri (flood from an inundation canal or weir controlled canal) Chahi (by lift from a well) and barrani (rain). When the land lies high above the creek or canal, the water has to be taken out by lift, and sailab and Nehri change into abi and Jhalari. By combination from these simple classes, chahi-nehri chahi-sailab, chahi-jhalari. nehri-abi and jhalari-abi are made. The soil classification in each Tehsil shall be dealt with separately.

Leiah Tehsil.

In the Khachchi tract what is sand one year may be silt the next, and in the Thal the initial quality of the soil is of little importance, except in so for as it affects the amount of water given to the crops. Salinity and water logging have, however, greatly affected the quality of the soil, although such affected tracts fall in the same general classification. The soil is classified

saliab, Chahi-sailab, Nehri, Chahi-nehri Jhalari and Chahi in kachi tract.

In Thal Nehri the classification is Nehri, Chahi-Nehri and barrani. The latter classification is entirely dependent on rain as the barrani in the absence of rain water turns into barren land (بنجر) Similarly in Greater Thal the classification is Chahi and barrani.

Kot Adu-Tehsil

River deposits have led to soil formation in general. Hence it varies in fertility and constibution according as the Indus left silt, clay or sand or as sedimentary strata developed. Round the towns, and on most wells the quality has improved by constant and heavy manuring. Such soil is known locally as "Milk" or 'Gas'. Of the natural soils "darh" is a stiff clay, which cakes badly when it dries, and is difficult to work. If moderately affected by saltpetre it changes to "rappar", if badly to "Kalrasi", which is white with salt and very sterile. "Dramman" is a thin layer of clay over sand. There are also numerous sub-divisions, distinguishable only by the farmers themselves, and caused mainly by the local drainage and water supply. As the sand hills of the Thal are approached, the proportion of sand in the soil increases and a mixture of sand with a little clay is known as "rug". In the Thal itself most of the soil is sand, distinguished as bitter and sweet according to the quality of the water of the wells. These soils vary in productivity, but seldom determine the crop grown on them which is dependent on the water-supply. Accordingly they have never been recognized in revenue work, and the soil classification as based on irrigation is (1) barani (2) chahi (3) nehri (4) Sailab (5) abi (6) chahi-nehri and (7) chahi-sailab.

There are more elaborate combinations of irrigation, but they are accidental. The aim of the farmer is to grow crops as cheaply as possible, so he manages to mature his harvest with flood water either directly from the river, or distributed through the inundation canals. When, flood water is not available till the harvest ripens he supplements it with water raised by lift or by canal water. In Thal, wither no floods come, crops have to be grown either with rain only (barani) or with well water (chahi).

Muzaffargarh Tehsil.

There is a well-marked difference in the soil to the east and west of the central wedge of the Thal. The older lands on the side of the Chenab are a rich brown loam of great fertility. The sand and clay deposited by the Indus are as in Kot Adu Tehsil. Generally speaking the soil is from unmixed sand in the centre of the Tehsil to clay in the west and to loam in the east till on the banks of either river new deposits of sand are again found. Throughout the Tehsil except among the sand hills of the north

and in the south beyond the end of the Chenab embankment, the soil is almost everywhere infested with saltpetre. This will be dealt with under the side heading "Salinity" and water-logging.

The soils are classified as (1) chahi, (2) Nehri, (3) sailab (4) chahi-nehri (5) chahi-sailab (6) abi and (7) barani.

Alipur Tehsil.

The soil of the Tehsil is naturally poor in the Indus riverain and in many other parts which differ mainly because of deposits from the Indus River, the silt of which is sandy and infertile in marked contrast to that of the Chenab. In the Chenab riverain tract there is natural fertility which elsewhere is almost entirely the result of human industry and heavy manuring.

System of cultivation.

In sailab lands ploughing is done when flood water recedes. In depressions the time is so short that it hardly allows one ploughing and therefore, gram, peas, barley or lentils are usually sown. Comparatively high lands are found suitable for wheat sowing. The cultivation of chahi-sailab lands is morecareful and systematic than that of sailab. The date when ploughings begin varies with seasonal differences in floods, subject to disparity in the intensity of the flood. Three to five ploughings are done clods are crushed, surface is levelled by a light wooden roller, field boundaries are raised so as to prepare the land for well irrigation and the first crop sown in the ground is of turnips. Sometimes gram and barely is also sown along with turnips for providing an ideal cattle feed in January and February. Generally these crops are sown near the wells. Wheat and barley come next and are sown in the month of October and early November. They are given five to seven waterings either by well or by Jhalar put up on creeks, if the winter rain fall is not enough. Barley and gram ripen in first week of April and the wheat a little later. The crop is however, off the ground by the end of the month. No sooner than the winter crop is over melons, tobacco and the summer fodder are sown. In Kot Adu Tehsil where-ever the land is sufficiently high to escape floods yet enough low to floods,receive moisture some Bajra and other fodders are sown. The principal summer crops are Jowar, Bajra, Tobacco, Cotton and Melons in this tract. Where-ever inundation supplies were available before the introduction of the canal system or where-ever the inundation supplies are still available the rice is also planted.

Central Irrigated tract.

There used to be little difference in the system of cultivation because the inundation canals used to take place of floods. With inundation supplies kharif crop was grown which otherwise was difficult to be grown on sailab lands. The inundation canal.

supplies have now been replaced by non-perennial wier controlled canal supplies excepting in some areas of Kot Adu and Alipur Tehsils where in-undation supplies are still given. In June when the canal supply increases rice is planted. After cutting the rice the gram is sown on the same land. Other summer crops namely Bajra, Jowar and fodders are also grown. Where-ever canal supplies are supplemented by well supplies wheat, barley, turnips and vegetable are grown. Cotton, tobacco and melons are also sown. In this tract in the month of August if the non-perennial canals continue to flow with full supply wheat and cane ploughing is undertaken. As the water is needed for summer crops as well as winter, ploughing it usually lends to abandonment of the sown area unless the August canals supplies are augmented by rain or by wells. There is a saying in Alipur Tehsil that better the July supplies in canals the larger will be the failed area unless the August rains are good. After the introduction of Taunsa Canal system and Rangpur canal system the canal supplies continue upto October and generally cease after land has been irrigated for wheat sowing. Winter sowing starts in the months of October and November. The area of these sowings is determined by the summer rains which in turn affect canal supplies and when these have been good more area can be matured by weel water alone without the aid of winter rains. The farmers do not abandon the wheat plots even if the rainfall has been little and well irrigation is not enough and keep contend with whatever yield he gets. In both summer and winter harvest the sown area is controlled by canal supplies and the yield by rains.

Thal Nahri

The perennial canal supplies have made it possible to grow both kharif and rabi crops with compatative ease and with greater certainty. In a unit of 15 acres with 60 percent intencity of irrigatin about 10-12 acres are cultivated. Summer crops are generally rape, Bajra, Jowar, suga cane and other fodders. In fact area round about Leiah has come out to be the best sugarcane growing tract. The period of owing generally tallies in this tract with that of the rest of the dstrict Cotton crop has not been as yet a success. Hot-wind ("is" لو) frequently dries up the cotton. A belt for wind breLung in order to protect cotton from hot winds is being sucakiully adoptcd in Thal Nehri. Cotton crops sown in the monesfof February far ahead the hot winds so the plant firmly th hes roots. As the soil in this tract is devoid of humous the catc depends upon the quantity of manure applied to the land. yieldsowing is generally made with drill. The clod crushers uThe the better cultivators in o her circules is not needed insed by t coils of this area. Amongst winter crops wheat, grai the ligh ground-nut, turmeric turnips sugar beats and other veg tables are important and are grown here. Among t the fruits citrus has been tested and found successful.

Ploughing are made after each fall of summer rain and during the intervals the flocks are folded for three, months on the fields. No clod crusher is needed. The wheat and barley are broadcast in October and November after which the field is harrowed and divided into plots which vary in size with the nature of the soil, sometimes as small as 6 feet × 4 feet. In comparatively fertile areas i.e. luks and patties well irrigation is also practised. Among these run the raised water channels carefully plastered with clay to prevent seepage. Great care is exercised in the distributions of water. It is led through plastered channels and great pains are taken to secure uniform flow. Where-ever the soil is composed of fine sandy loam the crop matures. Owing to heat Kharif crop is generally missing. The Rabi crop, on the other hand is off the ground by the middle of April. As much as 80 to 120 pounds of wheat seed is applied to an acre as compared with 60 to 80 pounds in the cannal irrigated areas. In a year when the summer rains are good melons are sown on the sand dune. In some parts of the Thal Kalan of Leiah Tehsil the wheat is also sown with drill. Where-ever tubewells have been installed, most of the cropping is done like cannal irrigation. Barani cultivation in Thal Kalan

The general pratice is to divide each estate into two parts In one part Kharif crops are sown in the other rabi. The following year Kharif crops are sown in last year's rabi half and rabi crops in last year's Kharif half. This alternation is called "dupar". There are exceptions to rule especially in the richer lands where manure is abundant. In sugarcane lands the rotation is generally turnips, sugarcane, indigo and wheat. These lands are always under crop, and the strength of the soil is maintained by heavy manuring. Wheat and barley are believed to do well after indigo and rice and peas or gram are generally raised off the rice-fields. Wheat, cotton, or melons thrive after sugarcane. Jowar, Bajra, moth, mung and mash do well after wheat and barely. Five Kharif crops just mentioned are usually the end of a series of crops. After any of them the soil is considered to be exhausted, and requires renewal by manure and constant ploughing. People appreciate repeated ploughings as a restorative. Their expression is that the month of the soil is opened by the ploughs, and attracts the sun and moon. In richer parts the land is never allowed to lie fallow. Where manure is scare, land is cultivated every alternative year. The soil called "dramman", which is easily exhausted, is sometimes allowed two or three year's rest between every two crops. All rules of rotation and fallows are liable to be broken if the canal running season is prolonged. Like inundation water canal water is so rich in silt that it manures, as well as irrigates. Rotation of crops and Fallows

In the Thal, on those wells which have a good supply of manure, about one-quarter of the cultivated area is left fallow

and Kharif is planted in different fields every year. The usual rotation is wheat or barley, wheat turnips, fallow, Kharif, wheat. In the western Thal where in places, there is no grazing or flocks of sheep never come, and where manure is lacking much longer fallows are given and usually half the holding is not sown every year.

In the canal estates indigo is sown in outlying sandy fields where nothing else is grown, except occasionally moth and other summer fodders. Indigo which often does better the second year, almost always remain two years in the land, and gives a second crop. Rice, except the latest sown which is not off the land in time, is almost invariably followed by gram, and this rotation continues indefinitely.

In chahi-sailab and chahi-nehri lands wheat and then fallow, is the rotation, except in the most heavily manured fields near the wells, where a little cotton, bajra or summer fodders are also sown and fallow is only every fourth harvest. In Sailab land there is no rotation and the crops sown depend on the nature of the flood.

The Agriculture Department of the district has prescribed the following pattern of rotation of crops:—

Non Perennial Irrigation

1. Rabi fodder.		Kharif fodder.
2. Wheat.	Fallow.	Wheat.
3. Wheat.	Fallow.	Cotton.
4. Wheat.	Turnips.	Sugarcane.
5. Wheat.	Cotton.	Kharif fodder.
6. Wheat.	Rice.	Wild peas-gram.
7. Wheat.	Cotton.	Sugarcane.

Perennial.

1. Wheat.	Fallow.	Cotton.
2. Wheat.	Cotton.	Sugarcane.
3. Wheat.	Rabi fodder.	Sugarcane.
4. Wheat.	Fallow.	Oilseeds.
5. Gowara.	Gram.	Fallow.
6. Wheat.	Cotton.	Kharif fodder.
7. Wheat.	Cotton.	Khaif fodder gram.

Kacha.

1.	Wheat.	Fallow.	Cotton.
2.	Gram and oilseed mixed.	Fallow.	Gram and oilseeds mixed.
3.	Wildpeas oil seed mixed.	Fallow.	Wild peas and oilseeds mixed.

Thal.

1.	Wheat.	Fallow.	Wheat.
2.	Gram and Taramira.	Fallow.	Gram and taramira.
3.	Water melons.	Fallow.	Water melons.

Manure is a process of mixing organic or inorganic matter in the soil to restore its fertility, or to enrich the soil or to prevent the soil from exhaustion due to continuous cropping. It is a well known fact that the plants remove from the soil in soluable state certain substances which are necessary for their growth. The cropping pattern which does not maintain fertility of the soil or "unity" leads to exhaustion. Occasional rests, method of cultivation and suitable rotation of crops improve the soil fertility or prevent it from exhaustion. Besides wherever sailab irrigation is practised river silt also improves the soil. Manure.

The manures can be grouped into categories:—

(a) Organic manures or Indigenous manures.

(b) Inorganic manures or Chemical manures.

Amongst the organic manures the following are generally used:—

1. *FARMYARD MANURE.*

Farmyard manure consists of waste straw or (litter) faecal matter (excreta) and urine. The more nitrogen, phosphoric-acid and potash it contains, the richer will it be. Value of framyard manure is not confined to the fertilizing effect along. It also effects the texture and water holding power of the soil. It restores the humous which in turn makes the land resistant to draught by retaining more moisture in the soil.

2. *INDIGO REFUSE CALLED VILAH & COMPOSTING.*

Any of the by-products of the farm which otherwise goes waste are converted into valuable manure by composting. The primary utility of composting lies in de-composition of the organic

matter namely weeds, material from old stalks, bottoms, the refuse from vegetable, gardents, cotton sticks, kular of Toria, Sugarcane stubble undefined fodder residue and such other material. A given temprature soluable nitrogen plus moderate distribution of air determines the ideal conditions for composting.

3. *GREEN MANURING OR SUBZ KHAD SUCH AS GOWARA.*

This consists of growing a green crop preferably a legume and ploughing it in the field. Crops commonly used for this purpose are Jantar, San. hem and Gowara. Green manuring generally improves the texture of the land by humous formation, by storing the nitrates which otherwise on light warm soil is easily washed away due to rains after the crop is harvested and by enriching the land with nitrogen gathered from the atmosphere by Bacteria in the root zone.

4. *CLAY FROM CANAL BANKS.*

Canal water generally brings silt. This silt is deposited in the bed of the canals. When canals are cleared at the time of annual maintenance the fertile silt is removed from the beds and stocked near the banks. Similarly some of the creeks which are maintained in district offer rich silt deposits either in the bed or on the banks. This silt is used by Zamindars as manure.

5. *SAND FROM THE SANDY LOAMS SAND DUNES.*

General topography of the land in the district is "Patti land" interspersed by sand dunes. In certain cases these sand dunes contain high percentage of sandy loams which is spread and is used as manure.

II. *CHEMICAL MANURE OR INORGANIC MANURE.*

Organic manure improves the texture of the soil by humous formation or as fertilizing agent people have resorted to inorganic manure to provide immediate plant food. Broadly speaking the inorganic manures are of 3 types *i.e.* Niteogenous fertilizer,

Phosphoric fertilizer and Potash fertilizer. Various kinds of the fertilizer are now in use in the district as under:—

1. **Ammonium Sulphate.**
2. **Ammonium Nitrate.**
3. Nitro-lime.
4. Nitro-soda.
5. **Cinamide and**
6. **Urea.**

(a) *ORGANIC MANURE.*

Manure is applied by being worked into the soil. Cattles are tied in lines in the field called "Dhara". Sheep and Goats are penned on it. In the Thal a fee of grain will procure the services of a score of goats and sheep for a long winter night. The fee is called "Alali". The dung of sheep and goats is better than that of camel. The camel-dung though full of deleterious salts is used when none other is obtainable in places in Thal. Manure is sometimes pulverized and applied by top dressing to growing crops. In this state it is called "Chhana". It is also applied by handfuls to young plants. The name of this is "Chungi deven". Green manuring or sabz khad has been introduced on small scales recently. Gowara, san or other such crops are grown during summer and ploughed in as soon as they come into flower. Poor soils wanting inorganic matter are enriched by green manuring. **Method of use.**

(b) *INORGANIC MANURE.*

Inorganic manure is generally used either through broadcasting or through placement method. The relative utility of both the methods is dependent upon the minimum losses of nitrogen during the process of its use. The following table gives the quantity and the method of its application per acre:—

S. No.	Corp.	Rate of fertilizers to be applied in Mds/acre.	Name of the fertilizer.	Time of application.	Method of application.	Probable increase in yield Mds/acre.	Remarks.
1	2	3	4	5	6	7	8
1	Wheat (Irrigated)	2 *OR* 1½	Amonium Sulphate. Amonium Sulphate Nitrate.	Immediately prior to 1st irrigation. After germination.	Apply broad-cast.	4	(*i*) Best results could be obtained from normally sown wheat. (*ii*) Application of the fertilizer to sandy soil, impregnated with salts and land with uncertain irrigation facilities may be avoided.
2	Wheat (Irrigated)	1	Urea.	Immediately prior to 1st irrigation after germination.	do.	4—5	
		OR 2	*OR* Amm. Sulphate.	At sowing.	Apply in furrows or broadcast cover with soil and sow wheat.		The fertilizer is applied in furrows during seed bed preparation and is followed by Sohaga to cover the fertilizer Net wheat is sown by usual methods. This applies both to the use o nitrogenous fertilizers and superphosphate where they are applied at sowing.
		OR 1½	Amm Sulphate Nitrate.				
		OR 1	Urea.				
3	Wheat (rainfed)	2	Amm. Sulphate.	At sowing.	Apply in furrows or broadcast cover with soil and sow wheat.	3	Do.—The response depends upon rainfall and its distribution.
		OR 1½	Amm. Sulphate Nitrate.				
4	Wheat (rainfed)	1½	Superphosphate.	—do—	do.	3	

5.	Rice (Nursery)	1½ pound per marla (1/160th acre.)	Amm. Sulphate.	Two weeks after germination	Amm; Sulphate may be put in a piece of cloth or gunny bag and place at the head of water in let for the plot while irrigating the Nursery.		
6.	Rice.	2	Amm. sulphate.	Two or three weeks after transplantation of paddy.	Apply board-cast in standing water.		In case of paddy sown by broad casting seed, fertilizer maybe applied when the plants are six to nine inches high.
		OR 1	Urea.				
7.	Maize (irrigated)	4	Amm. sulphate	Half the fertilizer may be applied when crop is kee-deep and half deep when it is high	Apply by broadcasting the fertilizer in the field preferably after hoeing.	5	(*i*) Apply a basal dose of 8 cart loads of farmyard manure (*ii*) Do not allow the fertilizer to come to contact with growth point.
		OR					
		3	Amm. sulphate nitrate.				(*iii*) Apply after the dew has disappeared.
8.	Maize (rainfed.)	4	Amm. sulphate.	At sowing.	Apply fertilizer in furrows or broadcast, cover with soil by applying sohaga.	5	Follow the details as for rainfed wheat.
		OR					
		3	Amm. sulphate nitrate.				
9.	Maize (rainfed)	4	Superphosphate. (rainfed)	At sowing.	—do—	5	—do—
10.	Cotton.	3	Amm. sulphate.	At the pre-flowering stage of the crop.	Apply broad-cast immediately prior to irrigation, preferably after hoeing.	2½-3 (seed cotton)	(*i*) The row to row distance should be 2 feet.
	OR	2½	Amm. sulphate nitrate.				(*ii*) Do not apply fertilizer to sandy soil or soil impregnated with salts or land with uncertain irrigation facilities.
	OR	1⅛	Urea.				

(iv) 3—17

11.	Sugarcane. *OR*	4 3	Amm. sulphate. Amm. sulphate nitrate	Half immediately prior to 1st irrigation and half immediately prior to second or third irrigation.	Apply broadcast preferably after hoeing.	10—15	Apply basal dose of 8 cart loads of farmyard manure before sowing.
12.	Potatoes.	6	Amm. sulphate.	Half with the 1st earthing up and half with the 2nd earthing up.	Apply as a top dressing and work it in with soil while earthing up.	20—30	Apply a basal dose of 8 cart-loads of farmyard manure before sowing.
13.	Chillies.	3	Amm. sulphate.	Add one maund of the fertilizer one month after transplantationand2mds in Octoberwhenyellowing of leaves is observed.	—do—	2½—3 (Dry chillies).	Apply a basal dose of 8 carts of farmyard manure before sowing. Apply fertilizer to crop raised directly from seeds in the same manner as to the one transplanted.
14.	Citrus plants.	3 lbs. per plant of at least 5 year.	Amm. sulphate.	One pound in Feb. one pound in April and one pound with the 1st shower of monsoon rains in July.	Apply round the tree away fruits by one foot from the trunk of hoe it in with soil.	40-60 fruits per tree.	Apply 20 srs of farmyard manure per plant in Janurary.
15.	Ground-nuts. (rainfed).	3	Superphosphate.	At sowing.	Apply the fertilizer in furrows or broad-cast with soil and do the sowing as usual.	3-6 (pods) depending upon the rainfall and its distribution.	The fertilizer may be applied at the time of seedbed preparation as for rainfed wheat.
16.	Berseem.	4	Superphosphate.	At sowing.	As for groundnuts.	100 (green fodder).	As for groundnuts.
17.	Sorghum.	3	Amm. sulphate.	At sowing.	As for rainfed wheat.	72 (dry fodder).	As for rainfed wheat.

Note:—1. In irrigated areas all fertilizer applications are to be followed by irrigations except where the fertilizers have been applied at sowing.

2. In rainfed areas the fertilizer may also be applied as in irrigated areas but one has to take a chance with rains.

The cropping of the dictrict has gone considerable change especially after the introduction of Thal Project. The table below shows the actual acreage of the total matured area occupied by various crops at present.:— Cropping

Name of crop.	Kharif 1962.
	(Acres.)
Rice	19,669
Jowar	40,670
Bajra	20,196
Cotton	50,989
Indigo	542
Til	5,938
Vegetable	13,780
Sugarcane	29,969
Chari	31,060
Pulses	13,661
Mids. non-food crops	3,667
	Rabi.
Wheat	4,54,086
Barley	11,243
Gram	95,799
Peas	30,350
Turnips	—
Pulses	8,006
Taramira	14,695
Bersem	18,790
Other fodder crop	39,848
Fruits	7,449
Total area under Kharif crops ..	2,90,060
Total area under Rabi crops ..	6,90,878
Grand Total ..	9,80,938

It will be seen that area under wheat has gone up considerably. Rice is grown but as compared with the total area under cultivation it has lost its original importance and its place has been taken by cotton and wheat. Cotton itself, is not a very popular crop though it is grown over vast area. Hot winds generally damage the crop and this is why in Thal it is sown in the month of February or in the beginning of March. Before hot wind starts, its roots are well established. Comparatively speaking cotton has progressed at the expense of indigo crop which has been eliminated altogether because of synthetic dyes. Wheat is chief stapple crop and is grown extensively. In Thal Nehri after wheat the second best crop is sugarcane. This is partly due to establishment of sugar producing industry at Lieah and partly because cotton as cash crop has not yet given very high yield. Pulses and fodder are more or less the same as compared with the total area under cultivation. Cropping depends more upon irrigation supplies than on choice, yet

the installation of wells and tubewells and the introduction of perennial canals in Leiah and Kot Adu Tehsils have given greater freedom to the agriculturists for selecting cash and cereal crops. Even the agriculturists have tried to over come the climatic difficulties by expanding or minimizing the sowing seasons.

Growth crop Cotton.

Previously cotton used to be grown on very small scale primarily in the central irrigated tract or near the wells. Recently it has been extensively introduced throughout the district. The increase in acreage under cotton is primarily due to recent varities which fetch very good price commercially and the Cotton Control Act, which has laid embargo on the mixing of cotton as well as growth of a particular speci of cotton in the district.,This system is recognized as regionalization under Cotton Control Act. The regionalization generally changes from year to year. In central irrigated tract the land is prepared in the month of February and March and cotton is sown in the month of April. In Thal Nehri, however, the land is prepared much earlier and cotton is sown in the end of February or in the beginning of March, while preparing land 5 to 7 ploughings are given. Cold crusher is dragged over the ground after each ploughing particularly where the percentage of clay is too high. The seed is rubbed with Cow-dung and then dried. It is sown either by broadcasting or is drilled. Two watering are given after sowing at short intervals when the young plants are 2 feet high a plough is driven lightly among them to loosen the soil. Even prior to ploughing the hard crust of the soil is broken after doing "Goddi" in the field. Cotton ripens at the end of September and picking goes up to the mid of January. It is generally picked by women. After 8 days total quantity picked is divided into 4 to 8, one "Dheri" is given to the picker as his or her share which is generally known as "Bhanji" 4 to 8 seers of seed are sown to the acre. Yield per acre is from 5 to 10 maunds. Enemies of cotton are Mula, a plant that begins in the entire plant. Boll Worm also damages the crop in bad year. Agriculture Department has prescribed three varieties namely 124-F, 189-F and L-. Besides L.S.S. variety is also grown. Desy cotton which is sown for domestic uses is Mali Soni-39.

The various diseases of the cotton crop and treatment pre-

cribed by the Agricultural Department are reproduced below:—

Name of Crop.	Name of pests.	Mode of damage	Control measure.	Remarks.
Cotton	(*i*) Spotted Bollworm	Caterpillas during June, July bore in the top tender growing shoots which wither and drop. Later on they attack flower, buds, bolls, which ultimately drop off.	(Doses per acre) 1. D.D.T. and B.H. C. (2—5) and 20 to 60 glns of water to give thorough covering.	(*i*) Other methods ropping when the flower buds and bolls are attached.
(*ii*)	Pink Boll worm.	The pest causes the shedding of flowers and squares and when the bolls appear, they are attacked and rendered useless. They destroy seed and lint, and is more destructive to American cotton	(*ii*) Endrine 2 to. 35 in 50 gallons of water. (*i*) BHC. and D.D. T (.21.5) add 20 to 50 gallons water. (*ii*) Endrine .2 to 3 with 20 to 50 gallons of water).	They should be hurled down by a rope immediately before heavy irrigation.
(*iii*)	Cotton leaf Roller	Caterpillars feed on lower surface of the leaves and roll up the attacked leaf from edges towards midrib. The rolled leave drops off.	(*i*) BHC. and DDT (.2 to .3) add 30 gallons of water. (*ii*) Endrine (.2 to .35) with 30 to 50 gallons of water. (*iii*) Malathian (.25 to 50) add 20 to 50 gallons of water.	
(iv)	Jassids.	The adults and nymphs suck the sap from the under size of leaves when edges. turn downwards. The attacked leave ultimately becomes red and drops off.	(*i*) BHC and DDT .2 to 3 with 20 to 50 gallons of water. (*ii*) Endrine .2 to .35 with 30 to 50 gallons of water. (*iii*) Malathian .25 to .50 with 20 to 50 gallons of water.	

(v)	White-fly	The pest attacks the plnats in tow ways.	(i) BHC, DDT. 2 to 5 with t20 to 50 gallons of water.
		(i) It sucks the sap, lowers the vitality.	(ii) Endrine 02 to 5 with 20 to 50 gallons of water.
		(ii) The honey-dew, it produces sooty-mould which retards the phtosynthetic of the plants.	(iii) Malathian .25 to .35 with 20 to 50 gallons of water.
(vi)	Black Headed Cricket	Destroys seedling by eating tender leaves.	(i) Endrine .2 to .5 with 20 to 50 gallons water.
			(ii) BHC and DDT. .2 to .5 with 20 to 50 gallons of water.

Indigo. Indigo used to be grown in the richest soil and was a popular crop. In recent years on account of water logging and lack of demand in the market its cultivation is rare. It occupies 0.05% of total matured area as compared with 3% at the time of last settlement.

Jowar. Jowar is sown for fodder in the March or April and for grain in the month of July and August. It is generally cut and stem again germinates, in the canal irrigated tract as well as on wells. The grain ripens in October. A maund of seed is sown to an acre. It is a popular crop for fodder though its grain is also ripen. It occupies 4.14% of the total matured area.

Bajra. Barja is grown in places for personal consumption of mostly poorer section and is badly needed in autumn, when wheat is selling at prohibitation prices. The ears of standing Bajra ripen at different times. Ripe ears are cut almost daily. Bajra is sown from 15th July to 15th August. Stalk of Bajra are never cut and stored for fodder like jowar but are left standing for the cattle to eat. Best Bajra is that sown in the heavily manured lands near the towns after tobacco, or after wheat which has been cut when green for fodder.

Rice. Rice is sown from the 15th April to the 15th May in nurseries which are manured a hand breadth deep with ashes or finely pulverized manure (Pah) and which are very carefully washed and weeded till the seedling's grow about eight inches high in about a month's time. The seedlings called Bajra are planted out at a distance of a hath (foot and a half) from one another in well prepared land in which water is standing. This water is allowed to dry up once, but after that the plants are kept submerged. Rice

requires regular supply of fresh water every ten days. It is one of the few crops which is carefully weeded. It ripens from August to October. The grain is extracted by sheaves being beaten against a log or bank of prepared clay. A little begami is grown on the Chenab canals but most of that grown is the usual coarse rehusked variety of the district.

In the year 1946-47, Sathra 278, variety, of the rice was grown but the same has been replaced by two other varieties namely Mahlar 346 and Jhona 349 by the Agriculture Department.

Pests and diseases due to which rice suffers and treatment prescribed by the Agriculture Department is summarised below:—

Name of crop.	Name of pest.	Mode of damage.	Control measures.
Rice	(i) Rice-stem border.	The newly hatched caterpillar feed exposed on the leaves for about half an hour when they bore into the stems from the growing point down wards. The central leaves dry up and dead hearts appear.	(i) Folidol .2 with 50 g llons of water (PEO). (ii) Endrine .2 with 50 gallons of water. (iii) BHC-DDT .2 to 1.5 with 50 glns of water
	(ii) Rice grasshopper	Both adults and nympths do damage by eating leaevs and stems of rice plants	(i) Endrine .2 with 50 gallons of water. (ii) BHC .25 to 2 with 50 gallons of water.

Sugarcane is grown in every part of the district except the areas where there is scarcity of water. Selection of land is generally made from fields which have just borne wheat. Beginning from May the land is ploughed from four to five times during the summer. After each ploughing the land is rolled and levelled. It is then heavily manured. Between September and January a crop of turnips is taken off the land. It is said that turnips do not exhaust the land. Actually it opens up the soil. Moreover, unrotted manure is used while raising the crop of turnips which by extra handling and watering decomposes by the time sugarcane crop is sown. Since the cultivation of the crop is on a commercial scale fertilizer is also used. After turnips have been removed, the land is ploughed eight times more and rolled. Sugarcane is then sown in February and March. Canes for seed are stored in ponds Sugarcane.

covered with earth called "tig". These are opend, canes are cut into peices, with one or two knots in each. A plough, which has a brick fastened across the sole to make a furrow, is driven through the ground. A man follows, who places peices of sugarcane in the furrow, presses them down with his feet and covers them with earth. Then a log of wood "Ghial"is dragged over the field. After planting the only care is constant watering and hoeing. Two hoeings are considered sufficient. Sugarcane is cut and crushed from the end of November to the end of January. It is generally supplied to the Mills upto May. Sugarcane once sown lasts for 3 years as the stem sprout known as "Moodi" Sprouts. Sugarcane varieties grown in the district are L54, C) 312, CO313 and P1. The Agriculture Department has prescribed two varieties CO223 and L-54 in place of the previous varieties CO 223 and CO 285,. The area under sugarcane crops has gone up by 3.06% due to Leiah Sugar Mills.

According to the note of the Extra Assistant Director of Agriculture, Muzaffargarh, the following are the details of the pests and diseases of sugarcane with their control measures:—

Name of crop.	Name of pests.	Mode of damage.	Control measures
Sugarcane.	1. Borers (*i*) Top-borer (*ii*) Stem-borer (*iii*) Root-borer.	Caterpillers bore into growing shoots during April to June and cause dead borer hearts except top borer which bores into the stem later on.	(*i*) BHC and DDT 25+50 lbs for each foot of sugarcane stand. Add 50 glns of water and increase doses accordingly. (*ii*) Endrine 2.5. (iii) Malathian .25 to 50.
	(*ii*) Phrills	Both adults and nymphs suck juice from under side of the leaves which become pale and blasted. Further growth is arrested. Honey-dew produced by the pest provides an excellent media for the development of sooty mold.	(*i*) HBC .25 to .50 (*ii*) Endrine .1 to .50. (iii) Malthian .25 to .50.
(*iii*)	Termites.	Plants are eaten off by from the roots and get dry.	(*i*)BHC .5 to .75 with irrigation water. (*ii*) Endrine .1 to 1½ with irrigation water.
(*iv*)	Redmites.	Leaf attacked become reddish, pale and growth is stunted.	(*i*) Malathian .25 to .50 add 30 to 50 glns of water.

Besides it also suffers from frost in certain years.

Moth is grown only on canal irrigated lands, especially in the Thal and is nearly always used for fodder, though seldom used as a feed of well bullocks. When it is intended to be used as grain, moth is sown in June and July; if for fodder, it is sown in August. A single ploughing is considered enough for moth. Moth,

Til is sown in August chiefly on sailab lands, on the Chenab much of the crop is very fine. One, or at most two ploughings are considered enough. Til ripens in November. The crop will thrive on any soil, except "shor" or "retli" but is a delicate crop, easily damaged, and since its stalks are useless for fodder, is seldom grown if any other crop can be cultivated. Til.

It forms the staple food of the people and is grown throughout the district. Popular varieties introduced by the Agriculture Department are C273 and C271. Recently "Dirk" has been introduced as unprescribed variety by the people themselves. Previously the varietes C.591, 217C, 228C and 518C were grown. The land is ploughed from five to seven times. On the banks of the rivers, if the alluvial deposit be soft, one or two ploughings are considered enough. The fifteenth of Katick, which corresponds to the end of October is the day for beginning to sow wheat and sowing should be over by the fifteenth of "Manghir", or the end of November. The seed is sown broadcast (chhitta) or drilled (nali). Fields are ploughed after being watered (Rauni) and if they do not dry up till the sowing, seed is scattered and the land ploughed and rolled. It is not watered till the sprouts are out of the ground. This is called pakka chatta. But, if the moisture dries up before sowing, the fields are watered after scattering the seed. This is called "Kur Chhatta". On alluvial lands and other heavy soil seed is sown with the drill when there is moisture in the land and then the field is not watered untill the sprouts are out. But, when the land has no moisture, the method of "Kur Chhatt" is adopted. Sowing with the drill is supposed to be surer anl more productive. Rabi crops wheat.

The essentials for a good crop of wreat are popularly considered to be.—

1. Sowing in Katik,
2. Watering in Poh.
3. Top dressing in Manghir; and
4. Good seed.

Wheat is watered from three to five times. The number of waterings depends on the kind of soil and on the weather. Green wheat is largely used for fodder, and while the grains are tender, the eats, are roasted and eattn by people. (Wheat is liable to be attacked by following diseases.—

Dhanak.—In March and April the grains Shrivel up and become curved and black. This is also known locally as mamni. This is a calamity and the introduction of gall-free seed alone can prevent it.

Kani or Smut } The grains become black and turn to a substance like ash.

Ratli.—Literally redness.—The whole plant becomes yellow and shrivelled. It is said to caused by extereme cold; and

Besides the above diseases white ants (Pests) damage wheat plant roots considerably and are cured by spraying Andrine. 1 to 1½ lbs with water and by BHC .5 to .75 with water by means of power sprayer.

The weeds injurious to wheat are bhukal. jaudal, jawanh or camel-thorn and the thistles called lehu and kandiari. Reaping starts from first of Baisakh, about the 12th April. Harvesting operations, however, begin a week or ten days earliar in the That and a week later in the riverain tracts. After cuting, wheat is stalked and is allowed to be dried. Thereafter it is trodden out by oxen tied to a stick in the centre. The action of the Oxen is helped by a heavy log called "Phalla" being dragged by them as they move round. Cultivators rarely winnow their own wheat.

Barley. Cultivation of barley closely resembles that of wheat. When not grown for fodder, it is a poor man's crop for food cultivated by those who cannot afford to plant wheat. In the South of the district a large eared purple-grained species is grown which is called "Indarjau". This is a different plant from the indarjau of Stewart's Punjab plants". It is grown as a delicacy and is chiefly used for parching.

Peas. Peas are sown both on Thal Nehri and sailab lands in October and November, where moisture is excessive for the cultivation of wheat. One or two ploughings are cosidered enough They are used as fodder; and the green pods are roasted and eaten. When ripe, they are used for dal or ground and made into bread.

Gram grows is almost invariably of the kind with Pink flowers; a white flowered variety is reputed to give a larger and sweeter grain, but is more delicate, and is seldom grown. Crop is either broadcast in the rice stubble after a single ploughing or with the drill in sailab land. It is a delicate crop and suffers from pests and the effects of drought, hail, frost and excessive rain. Normally, it is never given well water. Sometimes mustard is grown with the gram, and the protection thus given improves the yield. It is sown during October. Young leaves are eaten as vegetable. One or two ploughings are sufficient. Gram ripens in April. The pods are roasted and eaten and called "dadhri". Very little is sown on wells unlike in the Thal on barani land. The chief variety sown is 612C. Gram.

Turnips are sown to prepare the land for a Kharif crop. The seed is sown in September and turnips are ripe in January. They are mostly used as fodder and ripen just in time to relieve the failing stocks of other kinds of fodder. (The leaves, stalks and roots are eaten as vegetable and the root is out in pieces and dried for summer use. Oil from the seeds is extracted. Turnips.

Ussun is a plant of the Brassica family, slightly different from the taramira of the Punjab (Brassica eruca or Eruca sativa). It is sown in September. When sown alone or with mash, it is intended that the seed shall ripen. When sown with peas or gram, it is intended for fodder. One or two ploughings are sufficient. While green it is eaten as a vegetable. Ussun ripens in March and April. Sheaves are collected on a piece of hard ground and the seed thrashed out with sticks. The oil extracted from the seed is used for burning, anointing and making sweetmeats. In very hot weather ussun is mixed with bruised barley and wetted and given as a cooling food to buffaloes. A plant of ussun is like turnip which has grown to seed. It is a favourite cash crop throughout the Thal. Particularly when water supply is scarce it is grown on wells to supply oil cakes for the working cattle in the autumn. Ussun.

The other plants of the Brassica cultivated in this district are "arhion" or ahur mustard (Brassica Juneca) (a crop of little importance except in the estates near Multan town where it is a valuable crop); Sarhion Punjabi Sarron (Brassica comestris) sathri, It is called Sathri because it ripens in sath (sixty) days. Other cross of Brassica Order.

Mohri is Ervum lens, Punjabi massar and massur. It is sown in sailab land at the end of October. It is sown alone and with barley. If both mohri and barley are broadcast, the mohri is sown first and barley is sown in alternate furrows. It ripens in April and is made into dal. It is even more delicate than gram and in particular is easily damaged by forst. Mahri or Mauhri.

Tobacco.

Tobacco is grown mainly on wells, sandy soil of the wells on the skirts of the Thal and canal irrigated tract of Thal Nehari is particularly suited to it. Tobacco grown near Langar Sarai is supposed to be good. On the Powah wells of Leiah and of Kot Sultan it is valuable crop. There are two varities of which coarser, known as Jalandhri, is planted out at the begining of March and desi about a forthnight later. It needs a clean light soil, heavy manuring and frequent, but moderate, waterings from a well. It is sown as an extra rabi crop generally on land cleared of turnips. The leaves, wren fully grown, are cut and dried in sun.

Melons.

Melons are known as Kaddu (when the flower is white and "Painu" when it is yellow, though there seems to be little difference in the fruit). Owing to difficulty of export, they are grown only for local consumption. They are grown chiefly in the Leiah Tehsil. They are expensive to grow. Sowings are made in early March and usually cotton is planted among the melons. Heavy manuring watering, and fencing are necessary.

Area under crops.

For its growth table 19 in volume B shows the area under each crop for the whole district and the Tehsils.

Average yield.

The average yield of the principal crops is given in the following table showing the average at the time of settlement, partition and the present:—

Crop.	Settlement.		During partition.		Yield in lbs. per acre-Present	
	Irriged.	Unirrigated.	Irrigated.	Unirrigated.	Irrigated,	Unirrigated.
Rice ..	980	900	1000	900	960	900
Wheat ..	700	480	800	350	720	500
Barley ..	720	520	725	600	680	580
Jowar ..	410	370	500	400	500	400
Bajra ..	500	340	480	300	600	340
Gram ..	420	390	450	500	480	440
Rapeseed ..	460	400	320	300	400	300
Sugarcane ..	1180	1030	2000	..	2000	1000
Cotton desi (cleaned) ..	70	50	120	70	120	50

Fruits.

Mangoes and dates are the principal fruit products of the district which are not only largely consumed locally but are also exported in large quantities. Full description of the date tree and how it is cured has been given in Chapter-I. There are well-known orchards of dates as well as of Mangoes in the district, for instance "Taleri garden" near Muzaffargarh is reputed for best dates in the Indo-Pakistan Sub-continent. The chief varieties which are found in this garden are Halavi, Khud-Ravi and Shamran (all species of Basra dates). There is a small date curing glass-house in this garden.,The garden is under the management of District Council Muzaffargarh. Other local varieties of dates are also found in the district. Recently Dhahi or Kharo dates have been introduced from village Kharo Dera Ismail Khan. The chief Mango variety in the district is Tukhmi *i.e.* mango tree of seedling. Grafted mangoes which are successful are Langra and Malda. Few varieties are too well-known and their fruit is sold at considerable price. One of the example of such tree is "Sobay the Ting" described in Chapter-1.

Pomi-granates are generally found in the gardens near Alipur. Amongst citrus fruit Oranges, Malta, Mosumi have been successful through out the district particularly in the Thal irrigated tracts. Apples are also grown though quality is not so good. "Sue-bair" which is a specic of apple is a famous fruit of the district. Other fruits are Quinces, pears and figs. The fruit Grower's Association have also contributed to the development of friut gardens.

Vegetables.

Turnips are grown on every well as vegetable, as well as fodder for bullocks. Besides turnips, onions and melons are also grown. Radishes cauliflowers, egg-plants, gourds, cucumbers, chillies, anised, garlic, karela (a small prickly gourd) spinach, cabbages, carrots, fenurgreek, spices and coriander, are also grown on wells adjoining the towns. Round Karor and Leiah vegetables are grown commercially, and are most profitable. According to the Agricultural Department the total yield of various kinds of vegetable for the year 1961-62 is as below:—

Vegetables 1961-62	Leiah	Kot Adu.	M. Garh	Alipur	Total
1. Potato ..	125	78	97	79	379
2. Cowl-flower ..	28	8	3	10	49
3. Onion ..	..	493	..	..	493
4. Turnip ...	..	837	1,359	..	2,196
5. Carrots ...	42	27	13	46	123
6. Radish ...	..	..	..	1	1
7. Others ..	1,784	107	336	249	2,476
Total ..	1,979	1,550	1,808	385	5,722

Vegetables 1961-62	Leiah.	Kot Adu.	M. Garh	Alipur	Total.
Kharif—					
1. Potato	..	..	27	..	27
2. L. finger	..	18	8	10	36
3. Growned	..	8	6	13	27
4. Brinjal	..	15	11	20	46
5. Others	10,389	84	317	77	10,867
Tatal ..	10,389	125	369	120	11,003

Agricultural Staff.

Muzaffargarh District is situated in the south-western Agricultural Division, which has its headquarters at Multan, where there is a Deputy Director or Agriculture. The staff working in the district is under the immediate charge of the Extra Assistant Director of Agriculture, whose headquarters are at Muzaffargarh. With increase in irrigational projects there has been a considerable addition to the Agricultural staff in the district. There are 12 Agricultural Assistants and 48 Field Assistants working in the entire district. The details of which are given below:—

Name of Tehsil.	Number of Agriculture Assistants Hqrs thereof.	Number of Field Assistants with head quarters·
Muzaffargarh ..	3 (two at M. Garh and one at Khangarh).	12, one each at M. Garh Rangpur, Muradabad Basira, Kar Karimdad Qureshi, Sharif Chhajra, Kinjhar, Khangarh Aludewali, Rohillanwali and Marhan.
Kot Adu ..	3, one each at Kot Adu, Sanawan and Gujrat. *Note :* One post of AA at Gujrat is still bying vacant.	12, one each at Kot Adu D. D. Panah, Pannah Munda Jannu Sanawap. Wandhar, Khaire Sheikh Umer, Gujrat, Mahmood Kot, Budh, Ghazi Ghat.
Leiah ..	3, one each at Leiah, Kot Sultan and Karor.	12, one each at Leiah Naushera, Chaubara Chowk Azam, Kot Sultan, Dhurri, Addah, Karror, Thal, Jharqil, Falehpur and Sahuwala
Alipur ..	3, one each at Alipur Shehr Sultan and Jatoi.	12, one each at Alipur, Yakiwali Khairpur, Sadat, Sitpur Shehr Sultan, Damarwe, Madwala, Jhalarin, Jatoi, Sabhaiwala, Belewala and Jhugiwala.

Previously field staff used to be responsible for the extension work. Number of extension plots under its own supervision used to be laid and selected crops used to be grown displaying better use of seed, manure and fertilizer. Since the function regarding seed supply and the distribution of fertilizer have been taken over by the Agricultural Development Corporation and Cooperative Development Board the field staff is now primarily responsible for implementation and supervision of agricultural schemes. It also acts as a Bureau containing statistics about results achieved by different farmers and imparts necessary information to interested Zamindars. It also imparts instructions in the eradication of pests and diseases and propogates the use of improved implements. The Department has also allocated one Bulldozer for levelling of land in this district on hire payment. The rates range from Rs. 15.50 per hour to Rs. 31/- per hour. In case of Bullodozers Plunger the rates range from Rs. 11.00 to Rs. 22.00 per hour for Wheel type tractors the rates range from Rs. 7.50 to Rs. 15.00 per hour. The lowest rates being charged from the proprietors having holding upto 100 acres. Medium rates being charged from farmers holding land upto 250 acres and highest rates are being charged from owners who own more than 250 acres.

It is, however, increasingly felt that the Department has not been able to meet the entire requirements of the district. The levelling oprations in Thal are primarily being carried out by Agricultural Machinery Organizatoin of Thal Development Authority. The Departmental sources are more or less regligible. Similarly number of Agricutural Assistants and Field Assistants is also inadequate.

SECTION—B.

Agriculture problems.

General.

The district suffered both due to the capriciousness of the nature and indolence of the man. Now and then exposed to floods, with ever rising water table (in consequence of which saltpetre accumalated on the ground) agricultural development was slow. Scarcity of water and inadequate rains, with encroachment of advancing sand dunes were some other factors which deterred the development of organized agriculture. Pre-partition in security of turn was the principal handicap of agriculture in the district; post-partition the problems of agricultural finance, water logging and salinity have become more manifest. Marked improvement did take place in the field of irrigation and improved communication but these advantages were written off due to water logging and salinity. The state of Agricultural developments can best be judged from the fact that out of culturable area of 28,84,102 acres, only an area of 12,07,564 acres is actually under irrigation. Some of the problems with their attendant evils are detailed below:—

Salinity.

Besides poor quality of land and uncertain distribution of water; salinity and water logging costitute a serious menace to Agricultural advancement. The percentage of salinity in this district is much more than is found in any other district of the former Punjab. The total area affected due to salinity is about) 2,25,000 acres in this district. Salinity simply means presence of salt either on the soil surface or within the root zone. It generally decreases crop yield or makes it completely incapable of growing any crop. Soluble salts were transported by the river from distant region and were deposited in this district. Salinity therefore, varies from area to area. Capillary action, causes salt to accumulate on land surface light irrigation or light rains instead of acting as salt flusher lead to salt concentration on the surface. Bad irrigation water which contains high percentage of salt, floods which spread a layer of salt from one part of the district to another also spread salinity.

Salinity in this district is a serious menace to agriculture as a whole. Common zamindar ordinarily can not take the problem, individually. Reclamation of such area is achieved either through removal of surface salt by scraping or through mixing of silt in the soil so as to lower the toxic concentration. Where-ever agricultural extension work is in progress sowing of salt tolerant crops has also been used as antisalinity measure. Some of the crops and trees which are salt resistant, are land, landi, mandal rice, barley,

berseem kikar, Bakain, caster and date palm. Recently, a new manure known as "Salino" has been introduced to reclaim salinity affected lands.

Alkalinity.

The salinity generally deteriorates into alkalinity. Wide spread alkaline lands are found in those parts of the district where clay predominates in the formation of soil. Alkaline salt, may be divided into white and black "Kalaro". It is generally believed that as compared to black salt is easy to remove white salt. Method of reclamation on the other rand is very costly. To reclaim alkaline land one maund of Gypsum per acre is required depending on the scope of blisiniotion.

Salt-petre is worst in places where surface water stands under the sand hills of the Thal and in great depressions ntar Sanawan and Gurmani. It however, increases or decreases from year to year according to the rainfal and floods. It is really difficult to define the exact limits of the area where salinity affected land exists. Some of the contiguous block of alkaline lands are found near Kot Adu, Sanawana embankment, round about Muzaffargarh and Rohillanwali towns and north and south-west of Alipur town.

Water Logging.

A soil is said to be water logged when soil pores in the root zone of the normal crops are saturated and cut off normal airtion Out of 12,07,564 acres of cultivated land 5,000 acres have actually gone out of cultivation and 6,90,000 acres are partly water logged. At such places sub soil water is 0.5 feet. Considerable acreage is likely to be affected within 2 to 5 years. Causes which lead to the water-logging are excessive floods and defective drainage. The area between two rivers which is popularly known as central irrigated tract has been the scene of excessive floods during late Nineteens and early twenties. This naturally has resulted in the rise in the ground water. Defective drainage is due to the fact that the ground level of the central irrigated tract is far below the water level of Indus.

The seepage from canals is excessive because canals in Thal pass though sandy tract and losses done to percolation are excessive. In some of the areas of Kot Adu Tahsil in summer water gushes out of the wells and adversely affect cultivation. Water logging has also destroyed some of the mango orchards in the district.

Some noticeable attempt has recently been made to fight out this menace. Recently the Irrigation Department has prepared an open drain scheme, in Kot Adu area along Muzaffargarh canal.

as anit-water logging measure. The West Pakistan Water and Power Development Authority have also prepared a tubewell drainage scheme which provides the sinking of 1240 tubewells in the entire district. Lining of canal has also been used as anti-water logging measure. Thal Main Line Lower taking off from Thal Canal system has been lined.

Indebtedness or Agriculture credit.

Though exact credit requirements of the district for Agricultural purposes have not so far been worked out. Yet it has been estimated over 2 crores of rupees (as per report of Manager of Agricultural Development Bank Muzaffargarh). The Economic Survey of 5 villages in which 445 families were also examined was conducted by the Board of Economic Enquiry in the year 1955. It reveals that the debt per family in the district averages at Rs. 575/- as compared with Rs. 414/- in the rest of the former Punjab. The total number of families which are free from debt comes to 66 percent as compared with 64 percent in the former Punjab. These figures have, however, nothing to do with their economic standard because the families which are primarily free from debt are labourers, artisans, shopkeepers and service men to whom money is not readily available as loan. Of all the classes; the tenants or peasant proprietors are the most hard pressed, in whose case average debt amounts to Rs. 4126/- per family as against 664/- in the rest of the Province. The following table gives incidence of debt class-wise:—

Class	Muzaffargarh.		Former Punjab (Pak.)	
	% Free of debt.	Average debt per indebted family.	Free of debt.	Average debt per indebted family.
		Rs. ps.		Rs. ps.
Proprietors of land ...	55	521.00	62	606.00
Owner-tenants ...	45	4186.00	65	664.00
Occupancy—tenants ..	46	..	67	288.00
Non-occupancy tenants ..	46	171.00	56	323.00
Labourer ..	83	107.00	68	232.00
Artisan ..	78	187.00	66	268.00
Shopkeepers ...	80	100.00	66	577.00
Servicemen ...	100	..	72	351.00
Miscellaneous ...	100	..	74	347.00

It will be seen that small proprietors are free from debt in a larger number than the medium size peasantry because small proprietors being generally tenant cultivators and lacking credit worthiness do not get any loan. The medium size peasantry who owns land is under debt to the extent of 71 percent as compared with 40 percent in the rest of the Punjab. The debt multiple of the land revenue in their case is 46.8 percent viz-a-viz 5 percent in the rest of the Punjab. The following table shows indebtedness in cases of small, medium and big proprietors.

Class.	Muzaffargarh			Former Punjab (Pak.)		
	%Free of debt.	Average debt per indebted. family.	Debt multiple of land revenue.	%Free of debt.	Average debt per Indebted family	Debt Multiple land revenue
Small proprietors ..	87	300.00	19.9	61	487.00	19
Medium ...	29	1694.00	46.8	60	522.00	5
Big ...	52	1354.00	7.6	64	1143.00	4

Formerly debt was primarily required for domestic expenses, social functions, purchase of land, purchase of cattle and purchase of seeds. The credit requirements, however, have multiplied on account of rehabilitation of small refugee settlers whose investment capacity for agricultural development is almost zero. Land reclamation, further adds to credit requirements. Mr. O. brien's apt remarks are reproduced below :—

"The agriculturists are very extravagant. They spend sums beyond their means at marriage, betrothals, circumcisions and funerals. They pay constant visits to shrines and places of pilgrimage, and make offerings there which they cannot afford. This part of the former Punjab is over run by religious impostors of different kinds, and the agriculturists make them presents out of all proportion to their incomes, and vie with one another in the largeness of their gifts. Persons who cannot afford to do so keep saddle horses.

"It is not bad farming or extravagance alone, so much as improvidence, that makes the agriculturists indebted. It is contrary to their habits to keep ready money by them. It a man makes a few hundred rupees more than his expenses, he will not keep any part of it for a bad year. He at once buys more land or more bullocks, or ornaments or a wife. He will do anything rather than keep the cash. If then there is a bad harvest next year, he must go to the money-lender.

Source of Supply.

Whereas friends and relatives were always there to fall back as a last resort, some efforts were made in the past by different institutions in making agriculture credit available. Following table as per survey of the Board of Economic Enquiry shows sources of credit.

Table showing the debt taken from different sources.

Serial No.	Source of Supply.	Percent. M. Garh.	Percent. Rest of the Punjab.
1.	Co-operatives	15.5	13.2
2.	Relatives and Friends	44.3	63.2
3.	Landlords	2.7	16.9
4.	Shopkeepers	...	2.5
5.	Taccavi	1.7	2.9
6.	Money Lenders	35.8	1.3

To the above list we may add Agricultural Development Bank and other banks which have recently entered in the field. The part played by each agency in the past is given below:—

Co-operatives.

Co-operative movement in the district has a chequered history. There was no society upto 1915 when 2 Co-operative Societies were transferred from Mianwali district alongwith the transfer of villages of Mianwali and Rang Shah. The lrst Co-operative Society was registered at Thatha Gurmani. In February 1916 a temporary Sub-inspector was appointed. In the same year 16 Societies and the Central Co-operative Bank were registered. The response was however not encouraging and by 1921 total number of the Societies registered was 153.

The number of societies rose to 483 in 1946 and 734 in 1962, including 433 Co-operative Credit Societies. In addition there were 46 Service Societies in the district. There are 5 Co-operative Banks one each at Muzaffargarh, Alipur, Kot Adu, Leiah and Karor which meet financial requirement of these Societies. Following table reveals the progress made so far by the Co-operative Movement.

Name of Banks or Societies.	No. of banks and Societies.		No. of members		Share Capital.		Working Capital	
	1947	1961-62	1947	1961-62	1947	1961-62	1947	1961-62
Banks	1	1(4)	274	655	21150	49900	1606275	5307501
C Non-Credit ..	1	1	96	251	..	..	739	5065
Credited Unlimited ..	237	436	6095	20882	65283	387881	393455	2332892
Development ..	..	8	..	1017	..	68589	..	177032
Union Council	..	46	..	2789	..	64870	..	64901
Service	..	..	..	..	..	..	..	..
Multi purpose	..	1	..	16	..	..	..	4618
Silt clearance	4	3	457	40	..	..	4	4
Cattle breeding	20	17	460	450	..	..	75	87
Sheep breeding	5	4	112	109	..	..	24	40
Poultry	..	1	..	37	..	6806	..	13022
Better Farming	2	2	37	29	..	..	52	62
Fruit Growers	..	1	..	34	..	1575	..	4904

The Control and Management of Co-op-Society.

The working capital of the Banks and the Soc'eties is far from adequate to meet the total Agricultural credit requirements. Upto date 7358 agriculturists have av i ed of credit facilities and the amount advanced during the year 1962 om s to Rs. 15,23,413/- The Co-operative Service Societies are p marily concerned with the distribution of fertilizer and todate 939 tons of fertilizer have been distributed.

Agricultural Development Bank.

The Assistant Registrar of the Co operative is the Head of the Co-operative Department at district level with his headquarters at Muzaffargarh. There are 5 Inspectors, 26 sub-Inspectors, one Head Clerk, 10 Junior Clerks and 7 peons under him.

Besides the credit facilities afforded by the Co-operative Socities and the Co-opererative Banks, a branch of Agricultural Development Bank has recently been established in the district. The bank advances loans for tractors, tubewells, wells, peter pumps, bullocks, levelling of undeveloped areas, reclamation, Diary farming, sheep breeding and other Agricultural implements, seed (fertilizer). The bank has also undertaken financing cottage industries. Surety loans to agriculturists for seed, fertilizer, agricultural labour etc., are also given by the bank.

Relief afforded to Agriculturist

This Bank has sanctioned loans amounting to Rs. 17,36,036.00 upto 30-9-63 including Rs. 8 laces advanced during the current year. Total number of persons who have been benefited is 550. The amount includes loans for the purchase of agricultural implements etc.

Qualification of a loanee.

A laonee ordinarily should be an agriculturist. His ownership of the land would entitle him for a loan. Long term loans are granted exclusively against immovable property consisting of cultivated land. In some cases the loans are granted against moveable surety of gold as well as insurance policy.

Rate of interest.

The rate of interest for short and medium term loans is 7% and for long term loans is 6%. Period of short and medium terms extends upto 5 years while that of long term loans extends for a period of over 5 years but not beyond 7 years.

Taccavi.

Taccavi advances contitute 1.7 percent of the total agricultural credit. The importance of taccavi, however, does not lie so much in its amount but in its source, time and method of distribution. When any other agency feels shy; when agriculturist has no surety to offer in bad years; when agricultural produce does not fetch profitable price in economic slump years, the source available to the Zamindar is taccavi. In fact it is made available to the zamindar irrespective of the fact whether they are economically well off or poor. It is made available more in the years of epidemic, calamity, famine and floods. The procedure for its procurement is the simplest of all the money lending methods. A person is required to apply on T-1, or T-2, T-3 forms. The Revenue Officer goes in the field and on the verification of the Lumberdar disburses the amount. The recovery is effected alongwith the land revenue, unless suspended, remitted or postponed due to some calamity.

Taccavi appeared on the scene when it was considered that private money lender was exploiting poor zamindars. The loan advanced by the money lenders was mostly wasted on extravagant ceremonies. The rate of interest was ezhorbitant. The farmer had no money to spend on improving his land nor he was left with any incentive to work harder. Agricultural Loan Act and Land Improvement Loan Act was introduced to save rural economy. Land Alienation Act imposed further restrictions on the transfer of land Taccavi loan averaged to Rs. 6,06960/- in the year 1906 to 1911 and to Rs. 3,50,470/- in the year 1924-25. The total loan advanced under this head after partition comes to Rs. 41,15,116-. The above figures relate to the taccavi advanced by the Revenue Authorities.

Taccavi advanced by Thal Development Authority.

The Thal Development Authority also advanced taccavi to the colonists in Thal area for building houses and for purchase of bullocks and manures. The total loan advanced by TDA from 1958 to 1963 comes to Rs. 14,17,554/-.

Other scheduled banks do not advance loan for agricultural purposes, but for commercial use considerable sums are advanced by Habib Bank, Standard Bank, National Bank and other Commercial Banks. Other Banks

Improved irrigation practices and development of barren land encouraged the use of improved implements. Crude old Ploughs have been replaced by Raja and Miston Ploughs. Raja Plough, Raja Fodder cutter, Rabi Drill, Kharif Drill, Lyallpur Hoe and "Muna Hul" too seem to be out-dated now. New methods of farming demand radical changes in the types of implements. Machinery made available by the Thal Development Authority is always booked for levelling and development of land. About one million acres of land require levelling in the Tehsils of Leiah and Kot Adu. The zamindars are also increasingly taking interest in the use of improved implements. The number of desi hul has gone up to 1,11,825 as against 98,625 in 1945. The iron ploughs have gone up 103 from Nil and there are 106 tractors with the zamindars including 53 in Leiah, 19 in Kot Adu, 11 in Muzacargarh and 23 in Alipur. There are 2,458 engines as against 85 in the year 1945. The Cane Crushers driven by electricity have gone up from 12 in 1945 to 32 in 1960. Agricultural Implements.

Agricultural Machinery Organization of TDA has played commendable part in agricultural development. The Agricultural Department have allocated only Buldozer to the district. Total area levelled by the Agriculture Department in all the Tehsils comes to 758 acres and the number of hours comes to 1446. The Agricultural Machinery Organization of Thal Development Authority have developed (including levelling) 4,60,326 acres with 265 machines in the field. Agricultural Machinery Organization of TDA

The Machinery Organization was established under the guidance of the World Bank Experts with a loan of 3.2 million dollars and has its headquarter at Leiah. It has a fleet of 265 tractors and heavy buldozers. The Organization is headed by the Director of the rank of Superintending Engineer who has 3 deputies one incharge of the workshop and 2 incharge of the units of equal number. The Deputies are known as Divisional Engineer Operations and Divisional Engineer Workshop. The Organization is divided into 8 units having thirty-two tractors in each. One Mobile Workshop serves 4 units for minor repairs. For heavy repairs the facilities are available in the Base Workshop Leiah which not only renders repairs facilities to the departmental machinery but to public too.

New varieties of the seed have been described in the foregoing chapter Section A. The supply of good seed is however, a major Seed and Fertilizer.

problem. Previously the supply of the seed was the responsibility of the Agriculture Department. Recently this function has been entrusted to the Agriculture Developfent Corporation.

Improved Agriculture with improved seed gave rise to the demand of fertilizer. This function was formerly given to PIDC, but a part function has however been entrusted to A.D.C., who have appointed agents for distribution for the fertilizer. Last year there was scarcity of fertilizer and it was stated to have been black-marketted in Leiah.

Livestock.

Land, water and pair of bullocks (in the absence of Agricultural Machinery) forms an ideal combination for agriculture. Even with Machinery, a number of cattle heads are required for manure and for milk. The Oxen and Bucaloes were 8.8 and 1.8% of the total strength of the province in the year 1951. The density per 100 acres was 62 oxen and density of the Buffaloes per 100 acres was 8. This, however, does not mean that the district is sufficiently stocked. In fact there is no proper breed of note in the district and the animals are of very low quality. Total number of the animals in the district in the year 1960 under different heads was as under:—

Oxens.	Bulls	Mules	Donkey Colts	Buffalo	Buffalo Bul	Calves
2,24,921	1,135	146	28,169	65,800	1,661	1,53,161
Cow	Buffalo male	Sheep	Goats	Horses	Mares	Camels
1,55,076	42,243	3,25,705	2,09,352	3,730	5,492	21,748
Hens	Ducks	Filly	Colt.			
1,88,285	4,296	1,197	1,012			

Breeds of Cattle Horse breeding

Muzaffargarh is not a selected horse breeding district; Horses and ponies are usually imported from Dera Ghazi Khan District. The interest of most of the zamindars who used to keep good breed of mares some time back, has now gradually decreased especially because of the vehicular Traffic.

There are 3 Government and two District Council horse stallions. They are kept at Kot Adu, Leiah, Muzaffargarh, Alipur and Jatoi. Some of the stallions are of Balochi breed. Zamindars generally are not fond of a thorough breed and prefer the indigenous Sanghar breed.

Cattle breeding.

This district has got no particular breed of cattle of its own. As many as 29 approved Dajal bulls and 4 approved Buffalo-bulls are being kept in different villages and are paid allowances for their maintenance. Buffalo-bulls of Ravi, cow bulls of Dajal

breed are being subsidized at Rs. 30/- per mensum. The District Council has also maintained buffalo-bulls of Ravi and cow bulls of Dajal breeds on subsidy of Rs. 15/- per month each. The price of an everage Dajal bull in Rs. 400/- per head.

Dajal breeds

The bulls of this breed are medium size of white and grey colour with a tendency to be more dark on shoulder and neck. They possess massive head with black eye Lashes and black muzzle. They are bodily stout with well developed muscular limbs. Skin is soft and with glossy hair coat. Tail reaches below the back and ends in a black switch. In case of male the horns are short and stumpy. Sheath is moderately tight. Cows of this breed are of white colour with medium size horns, black eye lashes, black muzzle and hooves. Average daily milk yield is about 5 seers. The average price of a cow is Rs. 400/-, per head. Some of Dhani cows and bulls have been introduced in the district by the Thal Development Authority from its Commonwealth Livestock Farm.

Sheep and goats are mostly found in Dera Din Pannah of Kot Adu Tehsil and the Thal areas of Leiah Tehsil. Some of the goats of Gujrat side are also known to be of good. Recent instructions from the Government have placed some restrictions on breeding of the goats. Recently Angora Goat Farm has geen established by the Animal Husbandry Department of Government of West Pakistan near Chaubara.

Cattle diseases.

Following contagious diseases among the cattle of the district are often reported:—

1. *Haemorrihagic septicaamia*.—(Local name "Gal Ghoto. Ghuri).

It occurs during September, October, January, February and after winter season. Preventive H. S. Vaccine on Prophylactic *basis* have been found useful. Early treatment of this disease with salumathazine 33½% is also successful.

2. *Rinder Pest*.—(Local name "Mata-Waha Peen").

No specific time is fixed for this disease but it, usually occurs during the rainy season. Following control measures, have been considered effective:—

1. A.R.P.S. Inoculation.
2. Coat-is vaccination.

3 *Black Quarter*.—(Local name "Sat or Goli").

It occurs during and after winter seasons in hilly tracts. Following control measures are usually adopted:—

1. Black quarter vaccination.

2. Black quarter serum inoculation.

Preventive treatment is also useful in this disease.

4. *Foot and Mouth.*—(Local name "Monh Khur").

It occurs in autumn. Only curative measures are taken. Potasium permagnate and Alum are also given for mouth lesions. A new preparation of Tar oil and simple oil is also tried in fields for foot lesions. Segregation of the sick animals is also done. Animal are taken through paths containing anti-septic lotion, *i.e.* phenyle lotion which is maintained for the purpose.

5. *Ranikhet.*—(Local name "Kohra").

A most common contagious disease found in Poultry with no curative treatment so far. Periodic Ranikhet vaccination is carried out prophylactically to prevent and control the disease.

6. *Anthrax.*—(Local Name "Tain").

The diseaese is mostly found in sheep especially in hilly tracts of Dera Ghazi Khan District. Anthrax vaccination and serum inoculation is carried out to control it. It is communicable to human beings also and is known wool worsted disease which occurs in the form of a carbuncle.

7. *Glanders.*—(Local name "Bad Kanar").

It is found in Equines mostly in young age and the infection is first confirmed by mallein test and if found positive is destroyed immediately. The places where such animal is kept is thoroughly disinfected with strong disinfectants like Gamaxine powder. It is also communicable to human beings.

8. *Sheep Pox.*—(Local Name "Mata").

In this disease sheep pox vaccination is carried out to prevenl it. It may occur at any time in the year and besides taking heavy toll weakens the survivers too.

9. *South African Horse Sickness.*

This is a disease which is found in Equines only. South African Horse Sickness Polyvalent vaccine is vaccinated and it gives immunity.

10. *Surra.*—(Local name "Phita, Sokra").

This is a disease of equines, camels and dogs. It may occur at any time in the year. It can be treated in early stages. Public should take the patients to the local Veterinary Hospitals for treatment, which are equipped with necessary medicines etc.

12. *Parasitic disease.*—(Local name "Keron ke Bamarian").

This is a disease of poultry and is spread by ticks. This can be treated with Penicillin and sulfrasenol etc.

12. *Parasitic disease.—(Local name "Keron ke Bamarian").*

It is found in low lying and water logged areas. The animals involved can be treated with modern patent drugs.

Animal Husbandry.

The name of the Department was Veterinary Department previously. Since the function of the department has been onlarged *i.e.* breeding and research to have been included in the function of the department, it has been redesignated as the Department of Animal Husbandry. The Department in the district is under the charge of one Assistant Director Animal Husbandry and there are Veterinary Assistant Surgeons and Veterinary Assistants incharge of the village Hospitals and Dispensaries. There are 9 Veterinary Hospitals and 5 Dispensaries under their respective charges. Whereas the Assistant Director Animal Husbandry and Veterinary Assistant Surgeons are Government employees, the rest of the staff is District Council staff. There is also a Stock Assistant posted in Muzaffargarh.

Cattle fairs.

Following Cattle Fair are held during the period mentioned against each to encourage proper cattle breeding :—

Name of fair.	Day (period).
1. Annual Cattle Fair Talai Nur Shah (Tehsil Kot Adu.)	15th December each year.
2. Cattle Show (Leiah Tehsil) ..	December each year.
3. Annual Camel fair at Hussan Sher (Leiah Tehsil).	January each year.
4. Annual Cattle Show Inayat Shah (Leiah Tehsil).	March each year.
5. Cattle Show Alampur (Shehr Sultan) Alipur Tehsil.	April each year.

Marketting.

Communication facilities for proper marketing have been discussed in Chapter IV. After the exit of Hindu middle man the exploitation of a common grower has diminished considerably. The common grower still finds it difficult to bring his produce to Mandi and has to rely on village merchants. The rates of commodities are fixed by the Collector of the district. The fruit association in the district has to some extent eliminated the middle man profiteering and has also helped in the establishment of fruit gardens thoughout the district. Similarly direct purchases made by the Leiah Sugar Mills from the growers within the Cane Zone and the establishment of Sugarcane Depots outside the Cane Zone by the Mills have also helped in the elimination of middle man's profit. The establishment of association of the type of the fruit growers association might help in eliminating the middle man's profit. The scheme of providing Radio Sets to each Union Council is also likely to impart knowledge about the market conditions as a whole. The construction of M. M. Road and the Link Roads connecting important towns of Karor, Leiah Dera Din Pannah and Kot Adu with M. M. Road have given rise to important Mandi centres on the crossing *viz.*, Fatehpur, Chowk Azam and Patal Munda. Ultimately these chowks are destined to be big market centres. The Railway line which was surveyed at the time of the last settlement connecting Muzaffargarh with Panjand and with Ghazi Ghat has not yet been laid. This scheme if ultimately adopted will improve the marketing conditions.

The most difficult produce for marketing are perishable commodities namely fruits and vegetables. The facilities for cold storage are not found in the district and hence the produce has to be hurriedly diposed . The margin of profit thus enjoyed by the growers is very little.

SECTION-C.

AGRICULTURAL PROBLEMS (CONCLUDED) PRESSURE OF POPULATION AND OCCUPATIONAL TRENDS.

Pressure of population on soil.

Distribution of population is one person to an acre of crops including fodders. In Muzaffargarh Tehsil in 1881 the total area under crops was 1,73,833 acres which supported 1,46,885 persons. In 1901 the acreage rose to 1,54,273 and the population to 1,74,970 persons. The acreage remained the same till 1911 in which year the population was 1,87,064. The area under acreage declined and the population in 1920 registered the same number *i.e.* 1,87,579 as it was more or less in the year 1911. Epidemics took a great toll of population in the year 1922 thereby causing a fall in the total population of the district. In the year 1951 total area under cultivation in Muzaffargarh Tehsil was 2,33,422 acres which supported 2,34,856 persons in the same year. The acreage in the year 1961 rose to 2,46,690 acres and the population shot up to 2,90,986 persons. In Alipur in 1887 the area under crops was 1,36,649 acres and population 1,10,741 persons. With the rise in acreage to 1,48,192 population rose to 1,30,595 persons in 1901. The same trend continued upto the year 1921 in which year population and area under cultivation was 1,46,711 persons and 1,43,457 acres respectively. In 1951 census registered 2,11,182 persons as against 2,13,215 acres of land under cultivation in the same year. The abrupt rise of population in the year 1961 from 2,11,182 to 2,41,029 disturbed the equilibrium between area under crops and population. Similarly in Kot Adu Tehsil the area under cultivation and number of persons registered increase paripasu. In the year 1951 total number of persons in Kot Adu Tehsil were 1,43,090 as against an area of 1,49,477 acres under cultivation. Population rose to 1,84,639 in 1961 and the area under cultivation went upto 1,86,336 acres. In Leiah Tehsil population in 1951 and in 1961 was 1,62,203 and 2,73,224 persons respectively as against the area under cultivation of 1,75,448 acres and 3,63,641 acres. Total population of the district in 1951 was 7,51,250 and the area under cultivation was 7,71,562 acres. Population as well as the area rose to 9,89,878 persons and 10,10,039 acres in the year 1961.

Occupational trends.

This district is still predominantally agricultural. The District Census report 1961 shows the main and subsidiary occupation which are agriculture, fishing, money making etc. The occupational trends have been described at (page 1 –19 para 2.14). The population of the district contains the following elements:—

Elements of population.

1. Landlord.
2. Tenants.
3. Artisans.
4. Labour.

5. Big landlords.

6. Peasant Proprietors.

7. Permanent labour.

8. Social labour.

9. Casual labour.

Land-lords. Previously ½ of the ownership was held by big landlords. The land was cultivated through labourers or tenants. After partition big estates have been considerably reduced; Firstly due to acquisition by the Thal Development Authority according to which 3/4th of the area was acquired from owner having holding of more than 100 acres, ½ from the owners owning area between 50 to 100 acres and ¼ from the owners whose estates were form 15 to 50 acres. This policy affected most of the landlords of the Leiah and Kot Adu Tehsils where irrigation water from Thal Project was extended. Secondly size of big estates was curtailed due to land reforms. Thirdly small refugee proprietors have settled on estates of big Hindu landlords, which indirectly lead to the curtailment of large estates. Most of the landlords have now adopted mechanised farming in some cases.

Peasant proprietors of middle class. This class has come into existance after partition due to the settlement of the refugees, on evacuee lands or peasant proprietors on TDA and state lands granted in lots of 15 acres per family. They now constitute the economic base of the district. Some of the occupancy tenants also became peasant proprietors after 'Ala-Malkiat' right under land reforms were abolished. A large number of persons have also purchased lands from the government in auction. They are tillers of the soil and future of the district is linked with the prosperity of this class.

Tenants. This class either includes those persons who do not own any land but are cultivators or whose holdings have been reduced due to sub-division and fragmentation or due to river action. They thus cultivate land of big zamindars on Batai or cash rent. The bullocks and other implements are provided by the landlords. Surplus man-powers of this class also work as hired labour on farms and industries.

Artisans. This class constitutes the professional labour in villages. For instance they are weavers, carpenters, blacksmiths, potters and tanners. They primarily live on the earnings derived either by setting their goods or from Zamindar for services rendered by them during the year.

This includes social, permanent and casual labour. Labour.

They are sweepers, hair-dressers, water carriers, Machhis and shoe-makers. They render some social services to the land owner and other residents. They are generally low paid and are backward. Social labour.

This class includes Chowkidar and other permanent labour employed by the villagers for watch and ward. Usually these functions are transmitted by inheritence. There is not much difference in economic standard of both. Permanent abour.

Persons employed as farm servants do not belong to any particular class; when there is a family of several persons, some will stay at home and cultivate the family land while others go out as farm servants. People of all castes become labourers. Many of the proprietors and tenants are also field labourers; sweeper, washermen, and weavers also contribute towards field labour. It cannot be said that field labourers are inferior to self cultivating poor agriculturists. They too often go out as field labourers. Field labourers who are hired for the job as winnowers, cotton pickers, reapers, and indigo-churners, are paid at once. They are classed as casual farm labour for specific purposes. On the whole field labour and poor agriculturists are equal in economic status yet the later class has a better social status. Farm labourers.

The following table gives a detailed break up of the payment made to the farm labour per year:— Price of labours,

6666	GRAIN.										CLOTHING AND SHOES.													
Teh.	Food.		Tobeco.		Wheat.		Bajra.		Barley.		Chaddar.		Khes.		Blankets.		Shoes.		Bedding.		House.		Tab.	Produce of
	Srs.	Val.	Srs.	Val,	Srs.	Val.	Srs.	Val.	Srs.	Val.	No.	Val.	No.	Val.	No.	Val.	No.	Val.	No	Val.	No.	Val.		
Leiah	60	20/-	5	10/-	480	156/-	..	..	..	..	..	10/-	..	..	1	12/-	1	5/-	..	..	..	12/-	12/-	40/-
Kot Adu.	..	..	..	..	480	156/-	..	..	..	..	..	..	..	..	..	..	2	10/-	15/-	..	..	..	..	..
M Garh.	..	..	8	16/-	720	234/-	..	..	..	..	..	..	..	..	1	15/-	2	10/-	..	..	..	..	..	100/-
Alipur	..	..	..	..	720	234/-	..	..	..	..	1	10/-	..	..	1	6/-	2	10/-	..	..	..	..	,	150/-

Tehsils	*Total*
Leiah	397
Kot Adu	181
M. Garh	375
Alipur	319

It will be seen that the maximum payment is made on Lieah Tehsil. This is because the labour is in great demand during winter season when Leiah Sugar Mills is in operation. The

remuneration paid to Agricultural labour amounts to Rs. 33/- P.M. The daily labour is paid at the rate of Rs. 2/- per day where as the Artisans are paid at the rate of Rs. 5/- per day.

Economis conditions.

It is difficult to give a correct appraisal of economic conditions of all the class, in this district. Some idea about the standard of living can be had from statistics supplied by the Board of Economic Equiry, Punjab (Pak) in the year 1954. This survey was undertaken for determining family composition, rate of earning and condition of employment of small land owners, tenants hired farm labourers, artisans and mueens in the rural areas. Muzaffargarh district was taken to represent non-perennial canal tract. Two villages in this district were selected, one representing the affected village by partition and the other representing unchanged conditions. Following table gives the number of members and income per family in Muzaffargarh district.

No.	Group.		Average family members in M. Garh Distt.	Average family members in other dist's.	Average income in M. Garh.	Average income in other districts of former Punjab
1.	Small land owners	...	5.79	5.79	512.82	690.26
2.	Tenants	...	3.25	5.04	417.83	623.90
3.	Village Artisans	.	3.50	5.63	335.00	522.50
4.	Social labour	..	4.62	5.46	549.31	542.81
5.	Permanent labour	..	5.18	4.28	701.66	477.14
6.	Casual farm labour	..	6.75	4.81	468.67	417.79

The average family size in this district excepting that of a casual farm labourer is lesser than those of other districts. The income per capital and family is also low. Permanent labour earned more than what was earned in other districts, primarily due to conventional "Haboobs" paid by a common farmer in kind in addition to cash. The composition as well as the income has undergone considerable change after the introduction of canals.

Income per cultivated acre as per table given below shows that commercially agriculture is not yielding any fruit especially in case of peasant proprietors and tenant. It just provides base sustenance. The figures reproduced below provide a fair index of conditions.

Years and categories of cultivators.	Actual Basic. Gross Income.	Actual Basic. Expenditure.	Actual Basic. Net Income	Commercial Basis. Gross income.	Commercial Basis. Expenditure.	Commercial Basis. Net Income.	Remarks.
1949-50.							
Landlord ..	174.30	91.99	83.31	...	...	..	There were I holding of landlords, 3 of peasants proprietors and three of tenants.
Peasant Proprietor	664.22	91.97	72.25	164.22	192.06	27.84	
Tenant ...	69.03	57.50	10.53	68.03	102.43	34.40	
1952-53.							
Landlord ..	84.61	34.87	49.74	...	...	..	There were two holding each of landlord, peasant proprietors and tenants.
Peasant Proprietor	210.48	106.15	104.33	210.48	223.12	12.64	
Tenant ...	169.02	95.68	73.34	169.02	151.73	17.29	
1953-54							
Landlord	103.10	44.06	59.04	..	..	..	There were two holdings of each landlords, peasants proprietors and tenants.
Peasant proprietors	200.19	89.18	111.01	200.19	204.52	4.33	
Tenants ...	97.86	40.20	57.66	97.87	137.43	75.57	

The family budget follows agriculture cycle. In years of poor return the deficit has been more than in years of good return. The largest impact of good or bad return is on village mueens and other classes who are dependent on agriculturists for their living. The following table shows income and expenditure classwise:—

Yearly budget.	Peasant proprietor.	Tenant cultivators.	Agri. labourers	Artisans	Village Mueens.	Shop-keeper.	Big landlord.
1949-50.							
Net income ..	237.42	54.43	114.53	127.47	102.35	134.00	..
Expenditure ..	151.35	85.96	115.10	123.53	128.80	141.54	..
Surplus (+) or Deficit (—)	86.07	—31.53	—0.52	—3.94	—26.55	—7.54	..
1950-51.							
Net income ...	210.95	63.71	174.72	138.60	166.58	112.35	513.25
Expenditure ..	123.31	90.21	123.52	150.22	137.51	120.43	260.54
Surplus or Deficit	87.64	26.50	51.20	11.62	29.07	8.08	252.71

Yearly budget.	Peasant proprietor.	Tenant cultivators.	Agri, labourers	Artisans	Village Mueens.	Shop-keeper.	Big land-lord.
1951-52.							
Net Income ...	137.58	173.80	185.06	212.35	192.57	611.49	...
Expenditure ..	126.28	166.22	178.22	190.21	185.61	352.81	...
Surplus or Deficit	11.30	7.30	6.34	22.14	6.96	258.68	...
1952-53.							
Net income ..	470.55	146.87	123.53	169.86	192.61	194.77	378.48
Expenditure ..	360.27	128.41	131.03	181.64	190.75	200.00	263.07
Surplus or Deficit	110.28	18.56	—7.50	—11.78	1.86	—5.23	115.41
1953-54.							
Net income ..	531.54	164.12	104.75	159.94	178.11	174.10	423.04
Expenditure ..	337.33	121.31	121.68	176.00	180.10	205.43	281.90
Surplus or Deficit	194.21	42.81	—16.93	—16.09	—1.99	—31.33	141.15

Education.

Various aspects of population have been discussed in Chapter-I sub-heading population. The education has been the monoply of the rich or menials former because he could afford time and money to learn and latter because they want to improve upon their working conditions. In recent years the sons of middle class too have also shown keen interest in education. Even though 99.09% speak Punjabi and 4.92% speak Urdu, the position of this district in respect of litracy in West Pakistan is 29th.

Material condition of the people.

With the exception of the small number of Government servants, Patwaris, canal employees, police and the headquarters staff of the sub-division and the tehsil who are mostly outsiders from the West Pakistan, the entire population is directly dependent on the land for its livelihood, either as growers of or as dealers in agricultural produce.

The habits or style of living of the typical peasants, of the district have not undergone wide changes during the last quarter of a century. The middling land owners have, however, shown much improvement in their style of living. A small table or a

teapoy and few chairs will often be found among a Munshi's furniture and a china, enamelled or elluminium plate with a cup and tumbler to match, a kerosene oil lamp or a lantern are essential articles. His dress consists of fine cotton and fairly good woollen cloth. He wears shoes of English pattern and style. The use of soap, comb and brushes and the like shows distinctly advancing standards of comfort. The well-to-do zamindars are not lagging behind. Their dress has improved greatly and they use fine cloth. Modern articles are also in common-use. The furniture of their houses include a number of comparatively valuable things. The style of the houses in towns and large villages has improved considerably and modern houses are being constructed in Muaffargarh and Leiah. The people at large now travel by buses, trains and the rich zamindars maintain their own cars. The condition of the well-to-do zamindars and of the town's people of middle class has shown real signs of progress. The poorer people live in dwellings of mud and thatch which too are excellently suited to the hot dry climate. The landless labourers are now-a-days well off. Labour is not so cheap these days and the artisans can earn enough to lead a comfortable life. The position of un-skilled labourer and of a poor cultivator is of course not much better than before. He still has to toil hard for his livelihood. Ordinary dress of an agriculturist or a labourer consists of plain turban (Pagri) a shirt (chola) of cotton cloth and loin cloth (manjhla). A pair of shoes completes the working day dress of a farmer. There is tendency amongst men and women to take of their shoes and keep them in their hand when travels on foot even in hot summer to avoid wear and tear of their shoes.

Food. Principal meals are taken in the morning about 10 a.m. called "rotiwela" and eveing after sun-set. One light meal is also taken afternoon known as "Pachainwela". Principal food in winter is jawar and bajra and in summer wheat. Bread is made of floor and eaten with Dal, vegetable, gur salt or lassi whatever is procurable. Poor people eat "roti" without any accompaniment. Meat is rarely eaten except by rich and well-to-do persons. Dates also form an important addition to the diet especially of the poorer classes. The staple food of the well-to-do people of the district, however, is wheat throughout the year.

Land alianation.

The following table gives the total area mortgaged and sold during the year 1060-61.

STATEMENT A

No. of villages.	Total area mortgaged.	Land revenue	Mortagaged money
97	524 acres]	315	Rs. 1,48,985

STATEMENT B

No. of villages.	Total area sold	Land revenue.	Sale money.
2,165	21,254 acres	Rs. 5,328	Rs. 69,11,390

The area sold and mortgaged does not depict correct economic conditions of the people because the TDA since 1955 has been auctioning land to people and moneyed persons have been investing large sums in making purchases, for which mutations are not entered. The total area sold by the Authority in open auction and fix price scheme from 1955 to 1962 in this District comes to 1,58,371 acres. The average price in this district ranges from 300 to 500 and the sale price in TDA area ranges from 500 to 1000 rupees per acre.

Effect of land reforms.

Land reforms have been discussed in the chapter land tenure. The reforms, *inter alia,* have laid embargo on the sale and mortgage of land in bits in respect of those holdings which are of less than 12½ acres. The owner can however sell as a whole to another owner of the same revenue estate. As a result of it larger number of people from amongst old agriculturists class are becoming landless as they prefer to sell the entire holding as stipulated by land reforms rather than forego their requirements; which used to be fulfilled by mortgaging a bit of land. This is why mortgages are few in number than outright sale. The tendency is thus towards passing land in few hands in villages and gradual elimination of smaller agriculturists.

Whereas land reforms have led to the gradual elimination of small proprietors, the reforms have also led to the creation of middle class peasantary by transferring proprietory right in occupancy tenants or by fixing ceiling on the large ownership. The sub-division and fragmentation have also been checked. On the whole the effect of land reforms on the growth of agriculture is healthy. The continuous process of fragmentation and subdivision has been stopped. The restrictions on the partition of joint holdings will arrest the process of disintegration.

The sub-division and fragmentation of holdings posed another challange to the methodical development of agriculture. The Government of West Pakistan promulgated West Pakistan Consolidation of Holdings Ordinance, 1960. The consolidation operations were started in the year 1961. Total area so far consolidated comes to 1,47,723 acres in 147 villages. In addition to it the scheme for consolidation has been confirmed in other 33 villages which needs finalization. Area yet to be consolidated in the district comes to 12,62,958 acres situated in 478 villages. After the consolidation operations are complete the prospects for agricultural development will be more bright. Consolidation of holdings.

Though the rise in price have given rise to rise in wages in general yet the basic ratio remains as described in previous gazetteer. Generally 10% of the total income of farmer is spent in the form of wages to labourers. The following accounts taken from Tehsil report and copied from previous gazetteers give an idea of the payment made if assessed on the basis of the present market price. Rents and Prices.

LEIAH TEHSIL.

For each yoke an able-bodied man is required, whether he be owner, tenant or paid farm hand (beli). The latter receives wages make up as follows:—(1) his own food khad; (2) muddha, originally an allowance to married men, which is actually paid to all whether they have a wife or not (3) virsa, lump payment of grain on account of the extra work done at harvest; (4) bajrai a similar payment made at seed time; and (5) sirpa, a small sum of pocket money in cash, varying from annas 8 (50 paisa) to Rs. 4/- a month. Exept the shepherds, who are given warm quilted coats, the labourers are seldom clothed by their masters. The grain is paid as hunala for 8 months of which 2/3rds are wheat and 1/3rd barley, and siala, usually bajra or maize, for the other four. The proportion of grain given in the different heads varies considerably in different parts of the tehsil, but the total is nearly the same everywhere, and has changed little since settlement. It is rather more than a maund a month. The rich apparently find that it pays to give as much cash as possible; but, except that of the headman on a large well, the sirpa is seldom more than Rs. 2 a month. In addition to his wages, the labourer, especially in the Thal, gets such concessions as ewe's milk and a little fodder for the few beasts which he may own. In the Thal, where cultivation cannot be made without manure, either a flock is kept for each well or manure is purchased. The shepherd gets khad, muddha and sirpa at beli's rates, but, in place of bijri and virsa, a thick coat, his *fill* of milk flock and a lamb picked by himself at both lambing seasons. He can tend 150 sheep if the flock exceed that number, a boy is

given to help him, who is paid at half the man's wage. If manure is purchased near the towns, a donkey and driver are kept, whose only duty is to carry to the well the filth of the streets obtained from towns, etc. The driver is paid at the usual rates for farm-hands.

Menials in the Thal.

"The menials are paid in the Thal a fixed amount of produce for each yokc, which has not changed since settlement."

"As is natural on small scattered patches of cultivation remote from any centre of population, most of the work of cultivaing and harvesting the crops is done by the owners and belis, and the menials are only used for such specialized work which cannot be done by the ordinary farm hand. The most important menial, without whom the well cannot carry on, is the carpenter. Since the well-gear is made of the wood of the soft tamarisk, it rots and splits frequently and the carpenter's presence is often urgently needed. Moreover, the water of most of the Thal wells is brakish and rots the well rope in which the wooden slats, to which the pots are tied, are fixed by the carpenter. When an accident happens to the well-gear, unless the carpenter comes at once the whole crop may be spoilt. It is therefore to the farmer's advantage to keep on good terms with his carpenter, who is the spoilt child of the Thal, and usually a very opulent person. When he is called in, he is always fed on the *fat* of the land, and, in addition, takes rather more than any other menial. He charges a fixed sum in grain for each yoke working on the well, usually 7 topas (about 16 seers) in the winter, often all in wheat, but sometimes 1/3rd in barley, 2 topas of bajra in the summer and a seer of cotton if any is grown on the well. He also takes a bijrai at sowing which varies greatly in different estates, and a topa for each new well rope, of which there are six in the year. He is allowed also a kiari of both green wheat and of barley."

"The wages of other menials are calculated on those of the carpenter. The potter takes the same, less the bajrai, and charges for the rope. He is a depressed creature; and, since his work is not usually so urgent as that of the carpenter, is treated with far less respect than is the latter. The tanner who supplied blinkers and the leathern things of the wooden forks and other instruments is paid half what the potter taken. In theory the blacksmith is entitled to the same amount, but blacksmiths are few in number, and usually the farmer takes his broken tool to the forge and pays in cash or grain for its repair. The barber usually contracts with the owner to shave the belis periodically, and is regarded as entitled to the same payment as the blacksmith, and the lambardar's servant or kotwal gets 2 kiaris of green wheat and barley. Reaping and winnowing are paid for out of the virsa of the belis."

"Almost invariably the menials are paid in the Kachchhi in the same manner and at the same rates as those in the Thal. The only difference is that in certain parts where holdings are large, and there is an unusual amount of sailab cultivation, the resident owners, tenant and labourers are unable to harvest the whole of the crops and casual labour has to be engaged for harvesting and threshing. The traditional wage taken in one sheaf in twenty and one-fortieth of the threshed grain." Menials in the Kachhi.

"Normally, a well is cleaned out by professional well-sinkers every fifth year, but the period and expense alike vary greatly, and especially in the Thal, the owners themselves frequently empty the well and remove earth. When professionals are employed, they are paid in grain and food. The rates are Re. 1 a day and food calculated on a rather generous scale to the headman, and half as much to his assistants, who average four in number. The sharers, who are important people in the Thal, are paid in kind at rates which have not changed since settlement." Rents, wages, prices and Material condition of people and other expenses.

KOT ADU TAHSIL.

'Each yoke requires the attention of an able bodied man whether he be an owner or farm-hand. A hired man is generally paid in grain, with a small monthly sum of cash for pocket money and an annual suit of cloths. The people estimate his wages at about Rs. 100 a year. This is rather high, and though in Kot Adu a labourer gets more than in Leiah, his total receipts are not above Rs. 85 a year. A detailed discussion of the cost of well irrigation is given for Leiah, and is generally applicable to this tahsil also."

"The expenses of cultivation which affect the owners share of the produce are three fold :— Menials and other expenses.

(1) 5 topas of wheat (22½ seers) for each yoke in land irrigated by a well, or 4 topas of wheat (18 seers) in nahri or sailab land.

(2) 2 paropis of wheat, about 2 seers for every time a new rope is fixed in the well, which is done usually five times in the year. He is also given his food while employed on his work; and

Rents, wages, prices and Material condition of people.

(3) bajra of 2 paropis at sowing for each yoke. From the kharif harvest he gets for each yoke:—

(1) 2 seers of cotton if sown in well land, or 1 seer in sailab; and

(2) 2½ topas of bajra and 5 topas of unhusked rice, or 10 topas of rice if no other kharif is grown or 5 topas bajra if no rice is grown.

The potter is a well hand gets the same as the carpenter, without the bajrai, and charges for the rope. The blacksmith is supposed to get half as much as the potter, but, in practice the farmer usually takes his broken tool to the forge, and pays for its repair in cash. The tanner who supplies and repairs the leathern splices of the forks and other tools and the blinkers of the well bullocks gets 1/3rd as much as does the potter".

"When the owner cultivates through tenants, he has to employ a weighman 'dumbir' to divide the produce, who get 1/64th from the common heap. He also hires and old crone or other watchers to sit by the heap and to prevent pilfering by the tenant, in return for 1/32nd of the produce. The camelman who removes the produce to the Landlord's granary has also to be paid, but usually is a stranger who charges by the job if the Landlord does not use his own camels"

"When the harvest is a wide one, hired men have to be entertained to help in the reaping and threshing. These are seldom employed by the small holders, except for rice which has to be off the ground as soon as possible to allow for the gram sowings. The work is done mostly by people from the Leiah Thal who migrate to Kot Adu during September, and take 1/13th of the crop for their trouble. Most of other crops are got in by the cultivators themselves and by their servants and dependents, except the wheat of which a good deal is cut by hired labour at 1/30th. For the threshing of all crops 1/60th is charged, but much is not done by hirelings."

MUZAFFARGARH TEHSIL.

Muzaffargarh Tahsil expenses of Cultivation.

"Of late years the upset caused by the war coincided with pestilence, cattle sickness and a succession of bad seasons. Prices have been very high, though sellers were few buyers many, and during the past five years owners, to keep their lands in cultivation,

have been compelled to be liberal in allowances to their tenants, and in the rents which they have actually taken. Nowhere, have the recorded rents changes and such evidence as their is that the expenses of cultivation normally absorb no larger share of the produce than they did at settlement. The dues to the carpenters and other well menials, those of the reapers and threshers, all of which are paid in kind, are the same as at the first regular settlement. In places along the railway and near City labour has to be paid for in cash, and at considerably higher rates than elsewhere in the district, but this is no new thing, and only affects a very small number of the cultivators of the Tahsil. Taking good and bad seasons together, expenses are not different from what they were fifty years ago, except that the substitution of light occupiers rates and departmental management of the canals for the old system of forced labour must have lightened the work, though probably not the expense of the ordinary small holder.

Rents, wages, prices and Material condition of people.

"There are three classes of menial:—

Dues to Menials.

(1) Those responsible for the upkeep of the well-gear and tools of the holding, who are the carpenter, potter, blacksmith and tanner. These receive a fixed amount of produce, which varies from village to village according to the crops grown in each, but does not change from harvest to harvest. A typical payment to the carpenter, on whose dues those of the others are calculated, is:—

Kharif 1½ topas (1 topa=4½ seers) of jowar or bajra, and

5 topas (one topa=3¼ seers) of unhusked rice and

2 seers of cotton if grown, and

Rabi—5 topas (1 topa=4½ seers) of wheat.

He also takes a bajra of two paropis about 4 seers of wheat for his service at each sowing, and as such for fitting on the slats each time a new rope is bent to the wheel, which is done perhaps four times in the year. He thus gets in all for each yoke.

Bajra	Rice	Cotton	Wheat
11½ seers	16¼ seers	2 seers	42½ seers

The potter gets the same as the carpenter, without the payment for the plough and the rope, with which he has no concern, and so takes only 22½ seers of wheat.

The tanner and blacksmith each take half as much as the potter. In practice, blackmiths are few in number and the farmer takes his broken tool to the forge, gets it mended and pays for it in cash.

This class of menial takes for each yoke in seers:—

—		Bajra	Rice	Cotton	Wheat
Carpenter	..	11¼	16¾	2	42½
Potter	..	11¼	16¾	2	22½
Tanner	—	5⅝	8⅜	1	11¼
Blacksmith	..	5⅝	8⅜	1	11¼
Total	..	33¾	84¾	6	87½

(2) The second class of menials are those employed by the landlords to protect their interests against the tenants, and are the watchman and weighman, who are paid a share of the produce, which is recorded as 2 topas in the path, or 1/128th.

(3) The third class of menials are the hired men who help in reaping, theshing and winnowing. The reapers get 1/13th of the rice which they cut, and normally 1/40th of other crops, but actually more, since the reaper's sheaf is proverbially for larger than the others, and, in practice, is as much as he can carry away. The thresher gets a pai in the path, or 1/64th and the winnower 6 topas in the path.

"Crops such as bajra and jowar, which are grown for men who work on the wells, are however, cut by the cultivators themselves; so too is the barley which ripens and is reaped at a time when farmers have leisure from other work. The rice is harvested when the wheat ploughings are in progress, and it is important to get the crop off the ground as soon as possible so that gram or peas may be planted in the stubble; in these circumstances, outside help is usually required. The only crops which are largely cut by hired men are the sailab wheat and gram, of which the area is too large for the small resident population to reap the whole of it."

"As regards the threshers and winnowers, the threshing is done with the well oxen, for each yoke of which a man has normally to be kept permanently, whether he be owner, tenant or

labourer. Extra oxen are not hired for the threshing so there is no need of extra men. Winnowing also is done, except in a bumper year, entirely by the permanent staff of the holding. The proportion of the crop which normally is paid to these labourers is very small. The expense for cane and indigo are the same as they were at the previous settlement; cotton picking costs about 1/12th of the crop."

ALIPUR TAHSIL

"At the time of the installation of a new tenant the owner is responsible for seeing that the well-gear and tenant's house and cattle-shed are in proper order; the cost is met out of the ordinary share of the produce, from which the expense of the periodical cleaning of the well is also paid. For the upkeep of the well and other agricultural gear and share of the produce or more usually a fixed amount of grain for each plough in use, is set aside before the division of the heap and paid to the carpenter and potter. Reapers, threshers and other labourers whose work varies with the amount of produce receive a fixed share of the grain. These expenses, as declared by the people, approximate to 18 per cent of the total produce on well lands and 16 per cent. on flooded lands.".

Table 26 in Volume B shows the price at headquarters on 1st January in each year of the principal grains. Prices have risen considerably in recent years.

Rents, Wages prices and Material condition of people,

The sanctioned prices are very low firstly due to lack of communications throughout the greater part of the district, and the expense of movement of grain by camels: secondly, the inferior quality of much of the crops; and thirdly, great body of the producers are so bound by debt that they cannot deal in open market, or get the current market prices.

Weights and Measure.

The scale of linear and square measurement in use in the district corresponds with English measures:—

Linear Measure—2 paces ($5\frac{1}{2}$ feet) make 1 karam; and
1 karam square is sirsahi, which gives the
unit of local square measure;

Square Measure—9 sirsahis=1 marla=1 pole;
20 marlas=1 kanal=$\frac{1}{2}$ rood;
4 Kanals=1 bigha=$\frac{1}{2}$ acre.

Grain in the towns is measured by standard maund and its fractions, the seer and chattak. The villagers, however, compute grain by measure, not by weight. Measures are as follows:—

4 pans make 1 paropi, 1 pais make 1 chauth;

4 paropis make 1 topa, 1 chauth make 1 bora; and

4 topas make 1 path, 4 bora make 1 path.

The path being a measure and not a weight the weight of grain obtained in it fluctuates of course with the nature of the grain measured by it. Also, like most rustic measure it varies somewhat in size in different parts of the district; but, roughly it weighs from 27 to 30 maunds (the maund of 80 pounds) other articles are measured by the maund and its parts. There is no kachha, or local, maund in use in the district.

CHAPTER IV

SECTION A—IRRIGATION

The riverain tract in the district is probably one of the earliest settled area of West Pakistan. Most of the invaders went to South by means of river and left their settlements here and there. The well was an early means of artificial irrigation. Inundation canals and the weir controlled canals came on the scene later on. The latest means of irrigation is the tubewell. Thus the irrigation system can be classified into three categories *viz.*:—

Wells.

Wells are of two kinds, those lined with masonry (Pakka Khuh), and those lined with either logs or wattles which are called "Kharora", a well lined with logs is called "Ghat da Kharora", a well lined with wattles is called "Lai da Kharora. The soil is so fine that unlined wells cannot be made. All wells are worked by the persian-wheel. Persian wheels (Jhalars are operated on the banks of canals, rivers and tanks too. A well lined with masonry costs between 2,000 to 3,000 Rupees. Sometimes adhlopi agreements are also entered into whereby persons sinking the wells on their own expense get in return the share, usually 1/3rd in the land irrigated from the well. The depth of a well at the time of the last settlement was 12 feet from the surface of the water to the ground level and 8 feet deep in the winter on the boundary line of Leiah and Kot Adu Tehsils; and has decreased to 6 feet from the ground level to the surface of the water and 4 feet depth of the water itself, in the year 1961-62. This shows that water level in the district is on the increase and the district is faced with the menace of water logging. (An account of water logging may be seen in this very Chapter, Section B.)

The following statement shows the details of wells at last settlement, at the time of partition 1947-48 and in the year 1961-62:—

Name of Tehsil.	At last settlement.		At the time of partition 1947-48		Present-1961-62	
	In use	Out of use	In use	Out of use	In use	Out of use
Leiah ..	6,110	496	6,248	118	6,408	1,606
Kot Adu ..	5,100	747	5,522	1,170	5,681	1,227
Muzaffargarh ..	6,649	789	6,932	656	7,651	1,572
Alipur ..	4,485	1,564	5,053	1,551	5,260	1,343

It would be seen that the number of working wells is on the increase right from the previous settlement uptill now. But the percentage of the increase is very small. This is because of the introduction of weir controlled canal sytsem and of new tube-wells. The well as a unit of irrigation is uneconomical. The wells have also been replaced by Hand Pumps for drinking purposes and tube-well is replacing well wherever canal irrigation is not possible.

Tubewells.

There are 60 tube-wells installed in the district by private Zamindars, the details of which is as under:—

Serial No.	Name of Tehsil.	No. of Wells.
1.	Leiah	26
2.	Muzaffargarh	9
3.	Kot Adu	15
4.	Alipur	10
	Total	60

The average cost of installation of a single tube-well ranges from 8,000 to 15,000 depending upon the depth of water and the area to be irrigated therefrom. Tube-well irrigation has become very popular in recent years. Scheme of sinking tube-wells by WAPDA has already been discussed. Thal Development Authority is also proposing to lease out land on tube-well sinking scheme in the area of Village Maujgarh, Rakh Maujgarh, Tiba Mustaqil, Rakh Nawan Kot and in other Rakhs. Thus tube-wells as a means of irrigation is gaining importance in this district and since the sub-soil water is sweet and fit for irrigation it is likely to play an important part in the development of agriculure in this district.

Canals.

Prior to the introduction of weir controlled canal system there were chiefly seasonal inundation canals. But after the construction of Trimmu Head Works, Taunsa Head Works and Jinnah Barrage, the canals which irrigate the district are chiefly weir controlled. Whereas the canals from Jinnah Barrage are perennial,

the canals from Taunsa Head Works and Trimu Head Works are non-perennial. The Thal canal irrigates a large portion of Leiah Tehsil and about 1/3rd of Kot Adu Tehsil. The remaining Kot Adu Tehsil, Alipur Tehsil and the Western 2/3rd of Muzaffargarh Tehsil are irrigated by the canals from Taunsa Barrage and Eastern 1/3rd of Muzaffargarh Tehsil from Rangpur canal series of Chenab. The small portion in North of Kot Adu is still irrigated by inundation canal system off taking from Dullawala near Kot Sultan. Each system consists of 1 to 2 main canals with hundreds of distributaries and branches spread over the entire district. They can be classified as under:—

A. *Indus Series.*

1. Perennial canals.
2. Non perennial canals.
3. Inundation canals.

B. *Chenab series.*

1. Non perennial canals.
2. Inundation canals.

The canals falling within category off take from Jinnah Barrage and Taunsa Barrage excepting few inundation canals which irrigate the area in between Shehr Sultan and Muzaffargarh canal which bisect the old inundation canals wherefrom the Muzaffargarh canal feeds these through old inundation canals. A brief account of Thal Project and Taunsa Barrage with their main canals is given below:— Indus Series

1. *Thal Project.*

Most of the northern area of Muzaffargarh District comprised of undeveloped Thal land which was lying barren for a pretty long time. The question of developing this area had been engaging the attention of Government since 1870. The present Thal Irrigation Project which comprises those parts of the districts of Shahpur, Mianwali and Muzaffargarh in West Pakistan that lie between the Salt Range in the north, rivers Jhelum and Chenab in the East and river Indus in the West, was drawn up by the Government in 1936 and the work was started on it in 1939. This work had to be suspended in 1942 on account of World War II but was re-started some time in the year 1947 when the Head Works at Kalabagh known as Jinnah Barrage was completed.

The Thal Development Project as is now being executed is a combination of two gigantic schemes—one of laying a net work of canals over an area of some two million acres in the desert of the above said three districts including Muzaffargarh and the other of colonization of this zone. The irrigation Project broadly speaking comprises one main canal, called the Main Line Upper taking off from the Indus Canals at Kalabagh. This is a lined channel with a capacity of 6,000 cusecs. This canal divides at Kirariwala into three channels, the Main Line Lower, the Muhajir Branch and the Dullewala Branch. The planned length of the canals in the project is 1548 miles. The work on the irrigation project has been completed. The Thal areas of Muzaffargarh district are controlled by the Indus Canals Series of Hhal Project comprised in two Divisions namely, Bhakkar Division and Leiah Division, the particulars of which are given as follows:—

Bhakkar Division.

There is only one canal Sub-Division which falls within Muzaffargarh. There are no bunds in this Division. The particulars of perennial canals in this Sub-Division which irrigate the Nothern portion of the Leiah Tehsil are given below:—

Name of Canal/ Distributaries.	Length.	Bed width	Depth.	Remarks.
Main Line Lower	11⅓ miles.	17.50	11.40	Itself off takes from M.L.U.
Jharkil	.. 9 „	11.75	2.10	Off takes from M.L.L.
I-L-Jharkil	.. 1 „	3.0	1.40	Off takes Jharkil Disty
I-R Jharkil	.. 4 „	4.0	1.45	
Miran Disty	.. 6½ „	7.1	1.70	Off takes from F/Major. Disty.
F/Major	.. 9½ „	19.95	2.6	Off takes M.L.L.
Farooq	.. 12½ „	14.0	2.1	Off takes F/Major Disty
I-L Farooq	.. 1½ „	3.3	1.25	Off takes from Farooq Disty.
Asif	.. 7 „	8.75	1.70	Off takes from F/Major Disty.
Bhatti Minor	.. 6 „	7.0	1.7	Off take Asif Disty.
Aminwala	.. 7 „	9.25	1.8	—Do.—
Banialan	.. 12 „	10.5	2.1	Off take M.L.L.
Rajan Shah	.. 18 „	26.0	2.96	—Do.—
Qureshi Disty	.. 4 „	11.50	2.10	Off takes from Rajan Shah
Said Sub-Minor	.. 5 „	6.75	1.65	Off takes from Qureshi minor.

2. *Leiah Division.*

The headquarter of this Division is at Leiah with three Sub-Divisions, namely, (1) Bhagal with headquarter at Leiah, (2) Inayat and (3) Hayat Sub-Division, both headquartered at Tail Munda about 16 miles away from Leiah on Leiah-Jhang Road. Each Sub-Division is under the charge of a Sub-Divisional Officer who works under tre instruction of the Executive Engineer and maintains the channels within his jurisdiction with the help of the field staff. The following statement gives the particulars of the various channels/distributaries in this Division:—

BHAGAL SUB-DIVISION

Name of Channel.	Length	Discharge	Width	Depth	Remarks
	Miles.				
Indus Branch ..	10.26	575/656	N,/I.	..	
Doratta Disty ..	13.50	88.0	19.0	2.6	
Nnuwala minor of Dorarata.	4.30	15.0	6.5	1.6	
Shahpur minor of Dorrata.	6.50	24.5	9.0	1.85	
Sial Disty ..	10.48	37.5	11.75	1.95	
Moharan Disty ..	10.65	38.0	11.75	2.0	
Tarkhani Disty ..	14.90	63.0	16.0	2.35	
I-R Minor of Tarkhani Disty.	5.42	9.0	4.5	1.50	
Bhagal Disty ..	47.76	301.322	38.0	3.7	
Karim Minor Bhagal ..	7.0	23.25	8.5	1.7	
Ladhana Minor of Bhagal.	4.78	17.0	7.25	1.6	
Behar Minor of Bhagal.	10.16	41.5	12.5	2.0	
Sial Minor of Bhagal ..	4.20	13.5	6.25	1.5	
Ghulam Minor of Bhagal.	9.30	38.25	11.5	2.1	
Hiran Disty ..	12.54	40.6	13.20	2.0	
Leiah Disty ...	20.50	230/290.5	32.5	3.30	
Bhaunki Minor of Leiah Disty.	7.76	21.5	7.75	1.8	
Lehia Minor of Leiah Disty.	20.80	88.0/148.5	25.10	3.10	

HAYAT SUB-DIVISION

Name of Channel.	Length	Discharge	Width	Depth	Remarks
	Miles.				
Munda Branch ..	22.40	1175.09 1384.23	—	—	
Qazi Disty ..	7.40	18.21	7.5	1.7	
Dasu Disty ..	25.66	172.82	24.0	3.0	
Athri Minor oj Dau ..	17.66	26.23	9.5	1.90	
Jamal Minor of Dasu..	11.98	36.62	11.7	1.95	
Mochi Minor of Dasu..	4.20	9.65	5.0	1.5	
Khunan Disty ..	7.60	24.14	8.75	1.9	
I-L Minor of Khunan..	2.60	8.04	2.5	1.5	
Hayat Disty ..	43.56	485.55	49.0	4.4	
I-L Minor of Hayat Disty.	2.75	9.87	5.3	1.4	
Dad Minor of Hayat Disty.	26.80	183.34	8.20	3.2	
Jalal Minor of Hayat Disty.	7.32	20.24	7.9	1.8	
Lal Minor of Hayat ..	7.26	21.89	8.5	1.7	
3-L Minor of Hayat ..	8.35	22.61	8.25	1.8	
Khumbi Sub-Minor of Dad Minor.	14.23	30.85	10.25	2.0	
Soharan Sub-Minor of Dad.	10.64	35.83	11.5	2.0	
Murad Sub-Minor .. of Dad	1.90	4.86	3.0	1.4	
Sialan Sub-Minor .. of Dad.	3.53	10.78	5.5	1.5	

INAYAT SUB-DIVISION

Name of Channel.	Length	Discharge	Width	Depth	Remarks
Musa Disty ..	11.45	54.12	14.5	2.4	
I-R Minor of Musa ..	1.82	5.17	14.5	2.4	
Lundi Dity ...	8.64	29.22	10.0	1.95	No Bund in the jurisdiction of Leiah Division.
Inayat Disty ..	28.56	381.31	30.5	3.8	
I-R Minor of Inayat Disty.	5.15	8.87	4.5	1.5	
Pagli Minor of Inayat..	4.66	19.15/68.34	7.0	1.7	
I-L Minor of Pagli ..	3.22	8.99	4.5	1.5	
Nawab Minor of Inayat.	5.89	11.85	5.8	1.48	
3-R Minor of Inayat ..	4.23	8.05	4.5	1.4	
Munda Minor .. of Inayat.	10.45	175.05/	27.75	3.2	
I-R Minor of Munda Minor.	4.44	14.34	6.5	1.6	
Lanju Sub-Minor of Munda Minor	26.06	123.33! 149.49	22.75	2.9	
I-Minor of Lanju ..	2.94	5.34	3.0	1.4	
2-L Minor of Lanju ...	9.12	20.72	8.0	1.8	

Name of Channel.	Length	Discharge	Width	Depth	Remarks
I-L Minor of Machhu Disty ..	8·38	16·25	6·75	1.75	
3-L Minor of Lanju ..	4.13	15.46	7.0	1.5	
Machhu Disty ..	27.32	153.17	26.0	3.1	
Bisand Minor of Machhu.	8.70	20.39	8·0	1.65	
Sammandar Minor of Machhu.	8.25	20.63	8.0	1.75	

Intensity of Irrigation.

The permissible water allowance is 3.18 cusecs per thousand acre but in the case of canals taking off from Taunsa Barrage the water allowance is 7 cusecs per thousand acres which has been reduced from 9 cusecs per thousand acre as provided in the original plan. The subject of adequate water allowance has been under discussion for a considerable period in the meetings of Thal Revision Committee. The then Chief Engineer found, the water allowance of 3.18 cusecs per thousand acre which ensures 60% of intensity of water on each channel sufficient. In case of old Colony districts water allowance is 3 cusecs per thousand acre. This water allowance is on the excessive side and may be considered as one of the causes of water logging in the district.

2. *Taunsa Barrage Project.*

Muzaffargarhdi district lying on the left side of river Indus, like Dera Ghazi Khan district, was considered backward district in the sense that most of the area in the district was lying unbroken and undeveloped. Means of communication for D. G. Khan and its southern boundry were also limited. The production of food grains was meagre and both the districts : Muzaffargarh and D. G. Khan were declared deficient in food. Irrigation in this district was carried out by inundation canals which too was unsatisfactory,

In order to provide improved irrigation facilities to the district Government undertake to have a multi-purpose Project of Taunsa Project named after the famous shrine of Taunsa, a place 12 miles upstream of the existing Barrage. The Barrage has provided assured supply to areas of both the districts Muzaffargarh and D. G. Khan.

The following extracts from the note on Taunsa Barrage, recorded by M.A. Khaliq, Executive Engineer, Taunsa Barrage Division, presents salient features of this Project :—

"The Taunsa Barrage Project besides providing irrigation facilities and assured supply to tre existing area of inundation canals of Muzaffargarh and D.G. Khan district will bring about 7 lacs acres area under cultivation. The existing G. C. A. of inundation canals of Muzaffargarh district is 7,65,000 acres and G.C.A. 7,20,000 acres. The G.C.A. of new area to be brought under cultivation in Muzaffargarh district is 2,99,999 acres and G. C. A. 1,75,000 acres.

"There are two main canals taking off from this Barrage. The Muzaffargarh canal is taking off from left with authorized full supply discharge of 8301 cusecs and the D. G. Khan canal is taking off from the right with authorized full supply discharge of 14,200 cusecs. The water allowance allowed for the area on both the sides is 9 cusecs per thousand acres. The Kharif rabi is 1.05. The intensity of irrigation is 37% in Kharif and 35% in rabi, *i.e.*, 72% against 50% intensity of inundation canals.

"There will be yet another canal having authories full supply discharge of 14,000 cusecs which will take off from the left of this Barrage which was originally named as Hydle channel as it had to assist in generating 20,000 K.W. of electric energy from a total fall of 39 feet available from Taunsa to Shershah. Besides this, falls of 31 feet and 56 feet respectively available in link No. II and IV had also to be used for generating electric power. This electric energy had to be consumed in running 1700 tube-wells of 2 cusecs capacity which had to be installed as anti-water-logging measure and to supplement supplies in winter and late summer. These tube-wells had also to provide irrigation facilities to 7,23,000 acres during rabi. But this channel whose head Regulator has also been constructed along with the Barrage, and excavation of which is yet to be done, is now named as a Link Canal which would augment the supply of river Chenab. This link will now be excavated under replacement works. Originally the Hydle Channel had to be constructed in filling, but the Link Canal is proposed to be constructed in cutting and this proposal would help in reducing the problems of water logging and help in draining out the water in winter. The electric energy for the tube-wells will now be provided from Multan Power House which is run by Sui Gas which is equally cheap and available in abundance.

"The actual construction of Taunsa Barrage at the existing site which is 8 miles below the confluence of Sanghar hill torrent, which is the best from the point of view of irrigation and communication, was started in September, 1953. The river at this site used to be 13 miles wide during the highest floods. The Barrage alongwith the road bridge was completed in January 1958. The Division of

the river was started in December, and the river was pushed through the Barrage in April, 1958. This Barrage is designed for a discharge of 10 lacs cusecs but it can cater for a discharge of 12.5 lacs cusecs. The length of this Barrage between abutment to abutment is 4346 feet. There are 65 bays out of which 53 are weir bays and 11 undersluice bays of 60 feet each. There is a Navigation Channel on the left adjacent to the left undersluice bays which is 22 feet wide. Since there are two off taking channels, *i.e.*, the Muzaffargarh Canal and the Link Canal on the left, so the number of undersluice bays on the left are 7 while there is only one off taking channel on the right so the number of right under sluice bays is 4. There are two fish ladders, one on either side adjoining the undersluice which are 11 feet wide. All the intermediate piers are 7 feet wide. The crest R.D. of the weir is 428.00 and that of the undersluice 425.0, the upstream floor level is 419 in the undersluice and 421 in the weir, while the down stream flood level of the undersluice is 415. and that of weir 416.0 The weir gates are 19 feet high and the under sluice gates are 22 feet high. There are no Silt Excluders in front of the Head Regulators of the off taking canals and instead of Silt Excluders, Silt Ejectors have been provided at R. D. 4148 Muzaffargarh Canal and R.D. 20800 D.G. Khan Canal and through these Silt Ejectors, the high grade of silt is again taken back to the river on the downstream. The road bridge is designed for Class A.A. or 70 army loading. It is 24 feet wide with walk-ways of 6.00 feet on either side. The undersluice gates are in two pieces while the weir gates are in one piece only. These gates are operated manually by winches from the superstructure which is 40 feet high. The crest levels of all the off taking channels on the left and right is at R.D. 433.00. The guide banks on the upstream is 7292 feet in length. There are sufficiently long marginal bunds on either side which provide proper control over the river and the river remains restricted throughout the year. The Barrage provides for crossing of future high tension transmission lines across river Indus. Independent crossing of these lines is quite expensive. The Barrage also provides for crossing of gas, water and other pipelines. The flood passing through this Barrage can be classed into three categories:—

Low Flood—3,00,000 to 4,50,000 cusecs.

Medium Flood—4,50,000 to 6,00,000 cusecs.

High Flood—above 6,00,000 cusecs.

"After diverting the river through this Barrage, Muzaffargarh Canal was opened for the first time in the last week of July, 1958 when it was run upto R.D. 39,000 and Magason Canal. Kot

Sultan Canal, Kishan Canal, Hazara Disty : were connected with it. The remaining inundation canals were connected with it in 1959. They have been described in Appendix I to this Chapter, purely from the view point of historical interest.

"The water allowance of 9 cusecs per thousand acres by actual running has been found excessive and it has now been reduced by the Government to 7 cusecs per thousand acre. The saving in discharge from the reduction in water allowance from 9 cusecs to 7 cusecs would assist the engineers to bring more area under cultivation which would improve the food situation of these two Districts. The supply of fertilizers would help in increasing the yield of the crops.

"In order to save these districts from the menace of water-logging and salinity, elaborate net works of drains have also been prepared. The Mugaffargarh district which is lying between the fork of two rivers, *i.e.,* the Chenab on the East and Indus on the West, is effected very badly by waterlogging during the flood season when the general subsoil water level increases considerably. During winter it is covered by salts which come up on the surface and affect the crops adversely. The approximate figures of the area where water table ranges from Zero to 5' is 6,90,000 acres in Muzaffargarh district. The approximate figures of Thur affected area in Muzaffargarh District are 2,50,000 acres.

"It is expected that on the completion of this Project there will be following addition to the dwindling food resources:—

(a) Wheat	...	1,31,000 tons
(b) Cotton	...	22,000 tons
(c) Rice	...	51,000 tons
(d) Sugar Cane	...	56,000 tons

"This multi-purpose project on completion will yield an annual revenue of about 200 millions of rupees. The multi-purpose project is likely to pay 6 per cent. of revenue on capital outlay at full maturity.

"The total estimated cost of this project as per revised estimate of 1962 would be Rupees 22,19.23 lacs out of which the Barrage and its allied works would cost Rupees 1,170.25 lacs. The Muzaffargarh Canal and its allied works should cost Rupees 275.23 lacs."

There are 3 Divisions namely, Kot Adu, Alipur and Muzaffargarh. The following statement shows the data of channels and bunds in Kot Adu and Muzaffargarh Canal Divisions, respectively. Net work of canals and Distributaries.

KOT ADU CANAL DIVISION.

	from R.D.	to R.D.
Main Canals.		
1. Muzaffargarh Canal	6,785	64,357
2. Magasson Branch	0	42,358
3. Low Kot Sultan Disty	0	96,145
4. Lower Hazara Disty	0	27,300
5. Kishan Wah Disty	0	14,325
6. Upper Sardarwah Disty	0	1,03,750
7. Pattal Disty	0	11,500
Minor Disty.		
8. I-R-Minor of L/KTS.	0	25,000
9. 2-R Minor of L/LTS.	0	29,000
10. 3-R Minor of L/KTS.	0	29,000
11. Sanawan Minor of U/SDR.	0	55,800
12. Kesho Minor of U/SDR.	0	25,150

AHMADPUR SUB-DIVISION

	from R.D.	to R.D.
1. Muzaffargarh Canal	64,357	1,47,500
2. Thal Branch	0	86,300
Major Distributaries.		
3. Kot Sultan Ditch Disty	0	46,000
4. I-L Khuni Disty	0	35,000
5. I-R Pakka Disty	0	92,000
6. 2-L Khanpur Disty	0	54,500
7. 2-R Ghazipur Disty	0	89,500

	from R. D.	to R. D.
Minor Distributaries.		
8. Hassan Minor	0	23,500
9. I-L Dangi minor	0	14,200
10. I-L Shah Minor	0	25,500
11. 2-L Pattan Minor	0	25,000
12. I-L Khada minor	0	9,000
BASIRA SUB-DIVISION		
1. Muzaffargarh Canal	1,47,500	2,06,700
2. Upper Maggi below 29,000 Dandewala Disty ..	0	61,800
3. Upper Maggi below Dandewala	0	57,924
4. Magasson Disty	0	88,900
5. Kotwah Disty	0	21,500
6. Lower Sardarwah Disty	0	35,500
7. Lower Maggi Disty. off taking from R.D. 20,67,700 M. Garh Canal	0	1,000
8. Jakhari Disty	0	82,193
9. Kaluwah Disty	0	40,040
Minor Distributaries.		
10. Ghulam Wah minor	0	57,330
11. Kotwah minor	0	53,425
12. Dinga Minor	0	38,692
13. Bhagar Sub-Minor	0	17,869
14. Dabbi Shah minor	0	22,000
15. Sandila minor	0	53,10
16. Sanwah minor	0	51,970
17. Thal Wah minor	0	41,500
18. Bahawal Sub-minor	0	24,600
KHANGARH SUB-DIVISION		
Main Canals and Branches.		
1. Rangpur Canal	3,20,000	4,42,025
2. Muzaffargarh Branch	0	97,000

	from R. D.	to R. D.
Minor Distributaries.		
3. 6-R Disty	0	21,587
4. 6-L Disty	0	5,250
5. Alipur Disty	0	14,000
6. Muradabad Disty	0	15,250
7. Garesh Disty	0	67,400
8. Doaba Disty	0	37,300
9. Talliri Disty	0	98,184
10. Haji Wah Disty	0	65,890
11. Wafa Disty	0	28,150
Minor Disty.		
12. Khanpur minor	0	31,500
13. Jalalabad minor	0	11,940
14. Jagatpur minor	0	13,809
15. Waliwah minor	0	17,075
16. Bund minor	0	6,890
17. Gopang minor	0	10,000
18. Amir minor	0	30,000
19. Khangarh minor	0	14,322
20. Kamalpur minor	0	21,376
21. Nurwah Sub-minor	0	13,813
22. Umarpur minor	0	16,200
23. Ghazanfarwah Sub-minor	0	5,650
24. Makhnow minor	0	25,650
25. Aliwah minor	0	33,300
26. Jhandau minor	0	38,150
27. Genga minor	0	19,000

Bunds

Following is the detail of important bunds in Kot Adu Canal Division:—

S. No.	Name of Important Bunds.	Location	Utility	Length.
1.	Shahwala Groyne.	Kot Adu Sub-Division.	Over flouting of	5.3 miles.
2.	Dholewala.		Kot Sultan channel from main creek of River Indus.	4.5 ,,
3.	Upper Sanawan Bund.	Do.	It works as 2nd defence to left.	8.3 ,,
4.	Lower Sanawan Bund.	Do.	Margine bund for protection of M.M. Link.	9.0 ,,
5.	Maggason Bund.	Kot Adu Sub-Division.		8.5 ,,
6.	Maggi Maggason Bund.	Basira Sub-Dn.		5.0 ,,
7.	Shariti Groyne.	Do.	To divert the trend of Indus.	1.1 ,,
8.	Maggi Tie Bund.	Basira Sub-Divn.	To serve 1st defence of Sanawan bund.	12.2 ,,
9.	Sanawan Flood Bund.	Do.	It works as 2nd defence to Magi Tie bund.	12.0 ,,
10.	Chorbewala.	Do.	Do.	1.0 ,,
11.	Machi Tie Bund.	Do.	Do.	0.5 ,,
12.	Ghuttu Flood Bund.	Do.	To protect M.Garh District.	8.7 ,,
13.	Bund along left bank of Rangpur Canal (different reach).	Khangarh Sub-Division.	To protect Rangpur canal system and M. Garh district.	24.2 ,,
14.	X.Y. Bund along left bank of Muradabad Disty.	Do.	Do.	3.5 ,,
15.	Bund along of Taliri Disty. along right bank.	Do.	Do.	2.5 ,,
16.	Bund along left bank of M. Garh branch.	Do.	Do.	3.2 ,,
17.	Rohri Bund.	Do.	Do.	5.4 ,,
18.	Taken Bund.	Do.	Do.	0.78 ,,
19.	Bund along left bank of M. Garh branch.	Do.	Do.	2.8 ,,
20.	Bund along left bank of Taliri Distry.	Do.	Do.	1.3 ,,
21.	Chenab Flood Bund.	Do.	Do.	20.4 ,,
2.	Chenab Flood Bund along left bank of Taliri Disty.	Do.	Do.	2.3 ,,

MUZAFFARGARH CANAL DIVISION

Muzaffargarh Canal from R.D. 2,06,700 to R.D. 3,70,700 falls within Muzaffargarh Canal Division. There are three Sub-Divisions: Muzaffargarh, Shehr Sultan and Jatoi in the Muzaffargarh Division. The names of the main channels, and distributaries in each Sub-Division are as follows:—

A. *Muzaffargarh Sub-Division.*

1. Muzaffargarh Canal—R.D. 2,06,700 to R.D. 3,02,912.
2. Dinga Distributary.
3. Bhangar minor.
4. Meharpur minor.
5. Jarh sub minor.
6. Mondka sub minor.
7. Nangwah minor.
8. Chatti sub minor.
9. Ghuttu left disty.
10. Ghuttu right Disty.
11. Qaim Shah Disty.
12. Adilwah Disty.
13. Rajwah minor.
14. Pirwah minor.
15. Kalan Shah Sub minor.
16. Bahishti disty.
17. Rehru minor.
18. Fatuhal sub minor.
19. Azimwah minor.
20. Bakhtwah minor.

B. Shehr Sultan Sub-Division.

1. Dumbarwala Disty.
2. Karya Ahmad Shah minor.
3. Qadirpur minor.
4. Chhita minor.
5. Muradpur minor.
6. Khandar minor.
7. Haroon Disty.
8. Karya Mohd. Hussain minor
9. Puran Branch.
10. Bakhi disty.
11. Tarku minor.
12. Roti minor.
13. Kapreykhaz disty.
14. Saidwah minor.
15. Qutab Disty.
16. Lunda Disty.
17. Sahhaiwala disty.
18. Phulan minor.
19. Punu minor.
20. Jehanpur minor.
21. Fatehpur sub minor.
22. Noor Disty.
23. Chandar Bhan disty.

24. Alipur Disty.

25. Ghalwan Disty.

26. Qadara Disty.

27. Sabhaiwala minor.

C. *Jatoi Sub-Division.*

1. Muzaffargarh Canal—R.D. 3,02,912 to R.D. 3,70,700.

Note:—Main Muzaffargarh Canal terminates R.D. 3,70,700 and converts into Jatoi Branch with R.D. O to R.D. 3,70,701 tail.

2. Shujra Disty.

3. Jatoi Branch.

4. Sohni Disty.

5. Mir Hazar Khan (I-R) Minor.

6. Kot Ratta (2-R) Minor.

7. Kaure Khan Disty.

8. Gulwah minor.

9. Suhrab Disty.

10. Rattan minor.

11. Mughal sub minor.

12. Coheru Disty.

13. Khairpur minor.

14. Unarwah sub minor.

15. Lalwah sub minor.

16. Ghirri sub minor.

17. Mithanwali minor.

18. Nabipur sub minor.

19. Yarewali sub minor.

20. Sultanpur sub minor.

21. Suleman Disty.

22. Wahli minor.

23. Khanwah minor.

24. Theri sub minor.

25. Aluwah sub minor.

26. Bhambri sub minor.

27. Jhanwala minor.

Note:—There are only two branches off taking from Muzaffargarh Canal in this Division, namely, Jatoi Branch and Puren Branch lying within the jurisdiction of Jatoi and Shehr Sultan Sub-Division respectively.

Following is the detail of important bunds in Muzaffargarh Canal Division: —

S. No.	Name of important Bunds.	Location.	Utility.	Length in miles.
1.	Flood Bund from R. D. 44700 to R. D. 69000 along left bank of Ghuttu Canal to R. D. 91500 i.e. Junction of M. Garh Canal	Near bridge R.D. 220 of M. Garh Canal.	To protect channels Rly. line from Multan to Kundian between Budh and Mahmud Kot and a few villages.	9.31

2.	Ring Bund around Ghazi-ghat town.	New Ghazi Ghat.	To protect Ghazi-Ghat town and a few villages.	2.34
3.	Flood embankment along right side of M. Garh canal from R. D. 240 to tail of Jatoi Branch.	Along right bank of M. Garh Canal and Jatoi Branch	To protect the channel against ravages of floods.	54.12
4.	Khanwah flood bund.	Near Bara R. H. along Wahli Disty.	To protect the channels of Suleman and Soharan Distry. system.	1000

The following statement gives the total land revenue-water rate tehsilwise and divisionwise for the year 1960-61 and 1961-62:

Name of the Division.	Name of the Canal.	Name of the Tehsil.	Canal Revenue for the year 1960-61	1961-62
			Rs.	Rs.
Kot Adu.	Rangpur non-perennial canal.	M. Garh.	..	5,78,845
Do.	Do.	Alipur.	..	4,346
Do.	M. Garh non-perennial canal.	Kot Adu.	..	6,71,465
Do.	Do.	M. Garh.	..	1,77,040
Do.	Inundation canal.	Leiah.	..	12,534
Do.	Do.	Kot Adu.	..	1,02,737
Muzaffargarh	M. Garh non-perennial canal.	M. Garh.	3,68,186	..
Do.	Do.	Kot Adu.	532	..
Do.	Do.	Alipur.	7,21,143	..

Inundation Canal Series

Prior to the introduction of weir controlled canals from Taunsa Barrage. The inundation canals used to take off from Dholewala Regulator. Now all the canals which used to take water supplies from the main canal taking off from Dholewala have become part of Muzaffargarh canal system. However, up stream there are still old canals which irrigate the area between Shehr Sultan and Muzaffargarh canal. The canals which still form the part of inundation system with Distributaries and minors are as under:

1. Upper Kot Sultan district off taking from Dholewala Regulator.

2. Upper Sazara district off taking from Dholewala Regulator.

3. Ehsanwah minor off taking from Upper Hazari district.

4. Tibba minor off taking from Kot Sultan district.

Chenab Series.

Prior to the construction of Trimu Headworks from where the Rangpur Canal takes off there were three Chenab inundation canals known as Karem, the Talliri and the Ganesh, which irrigated the eastern 1/3rd of Muzaffargarh Tehsil of the Muzaffargarh district. These canals have since been abandoned and irrigation has been undertaken by the weir control system by means of Rangpur canal which off takes from Trimmu Head Works in Jhang district.

Substitution of occupiers, rates for Chhera.

The main canals were all originally constructed by the people. Before annexation, the management of the canals was in the hands of the irrigators, assisted by the local officials who saw that the labour necessary for the clearance and maintenance of the canals was made available promptly. From annexation till 1880, improvements in the management of the canals were made from time to time, but eventually the necessity for professional management was recognized and in 1880 a Public Works Division was constituted and an Executive Engineer was appointed. This system has been elaborately described in the Old Gazetteer and the relevant portions are re-produced in original:—

"The working expenses of the canals with the exception of a contribution of nearly Rs. 17,000 made by Government on account of pay of Darogahas, mirabs, etc., out of the imperial funds, are borne by the people. The clearances are effected by chher labour supplied by the people, and any work left unfinished is completed by paid labour out of the Zar-i-nagha fund, into which all fines inflicted upon absentee chher-guzars (assessors of statute labour) are credited. Other improvement needed are also effected out of this fund when there is money to spare. As regards the assessment of chher, an estimate of the probable requirements of each canal is made by a striking an average for the past three years of the total number of chher-as (labourers) who were actually present on works, together with chheras remitted to sarpanches and any supplementary chheras called out for urgent

works in summer. The estimate is discussed by the Divisional Canal Officer with the sarpanches (representatives of irrigators on each canal) assembled in a committee and is raised or lowered within a limit of 20 per cent., according to the probable requirements of the next working season. The total chher assessable for the year is thus arrived at. This is done, in the month of September. An average rate per acre is then deduced by dividing the total number of chheras required for each canal by the average area irrigated by that canal during the past three years. This rate is called the chher-parta. The chher parta for each canal is communicated to the Collector, who has chhar papers prepared by the Patwaris. The area irrigated is assessed at the parta above mentioned, and so the number of chheras to be supplied by each irrigator is determined. This system has been described as it is still largely followed in the Leiah Tehsil in dealing with the creek irrigation there. It is supervised by the Tehsildar and Sub-divisional Officer. The irrigation department has no concern with it. The Nagha fund **remains with** the Deputy Commissioner."

"On the abolition of the chher system for the canals in 1902, an occupiers' rate was substituted for it. On what considerations the rates should be fixed formed the subject of discussion and it was eventually decided that "for the present, the rates may be so fixed as to yield an income which shall not more than cover the cost of working the canals". The contention of the Canal Department was that the occupiers' rates should be framed irrespective of the working expenses, and should represent the price of water. The reasons which led Government to the above decision were thus stated:—"

"The enhancement of land revenue which is being taken is a full one; the abolition of chher is a change which the majority of the people profess to dislike, and in the absence of keen competition of tenants for land, there is a danger that the occupier's rates if high or full, might fall upon the others to pay in addition to the land revenue" Punjab Government letter No. 43, dated the 4th March, 1902."

The occupiers' rates prevalent at the time of the last settlement were as follows:—

Class	Crops	Rate per acre of matured crops (Rupees). Flow.	Lift.
	Chenab Canals.		
		Rs. A. P.	Rs. A. P.
I	Rice, gardens and paper	2—12—0	*1—6—0
II	Cotton, Sugarcane and indigo	1—8—0	*0—12—0
III	Other kharif crops	1—2—0	0—9—0
IV	Rabi crops (other than gardens)	0—12—0	0—6—0
V	Grass land (Posal)	0—6—0	*0—3—0
	INDUS CANALS.		
I	Rice, gardens and peper	2—0—0	1—0—0
II	Cotton, sugarcane and indigo	1—0—0	0—8—0
III	Other kharif crops	0—12—0	0—6—0
IV	Rabi crops (other than gardens)	0—8—0	0—4—0
V	Grass land (Posal)	0—4—0	*0—2—0

*Notifications Nos. 052-R.I., dated the 7th July, 1903 and 100-R.I, dated the 2nd February, 1916.

*Notification No. 434-R.I, dated the 4th May, 1907.

Note:—The rates for grass lands are to be assessed at the discretion of the Deputy Commissioner.

		Per acre
Note.—Water-advantage rate	...	0-12-0
Barani rate	...	0-4-0

On account of an over all development of Thal regions occupiers' rate has been enhanced with effect from kharif 1959 *vide* Government notification No. 10/55/SO. VIII (I)/59 dated 23-11-1959. The following statement shows the enhanced occupiers' rates prevalent on the three irrigation systems, namely Rangpur Canal, Taunsa Canal and Thal Canal:—

S. No.	Name of crops.	Per.	Rangpur Canal		Taunsa Canal		Thal Canal	
			Class	Rate per acre.	Class	Rate per acre.	Class	Rate per acre.
				Rs. As.		Rs. As.		Rs. As.
1.	Sugarcane (except on kharif channels) ..	Crop.	I	..	..	..		18—0
2.	Sugarcane on kharif channels ..	Crop.	II	14—0	I	12—0	I	..
3.	Gardens, Orchards and vegetables except Turnips.	Gardens and Orchard per half year, the rest per crop.	III	11—12	II	11—12	II	12—8
4.	Tobacco ..	Crop.	IV	10—0	III	10—0	III	10—0
5.	(i) Rice, water, uts, and lotus products ..	Crop.	..	9—0	..	10—0		8—0
	(ii) Area for which extra supply is sanctioned for reclamation purposes.	On the whole area during kharif season irrespective of whether it be irrigated in part or whole or not at all.	VI	9—0	V	10—0		8—0
6.	Cotton ..	Crop.	V	9—8	IV	8—8		8—8
7.	Poppy, Drugs, Dyes, Spices, Chillies and Fribers other than cotton.	Crop.	VII	8—8	VI	8—8	IV	8—8
8.	Oilseeds (except Rabi Oil-seeds on kharif channels).	Crop.	VIII	7—4	VII	7—4	V	7—4
9.	(i) Forest Plantation	Half year.	..	6—12	..	6—12	VI	6—12
	(ii) Paddock area as sanctioned by the Government.	Half year on the whole area irrespective of whether it be irrigated in part or whole or not at all.	IX	6—12	VIII	6—12		6—12

S. No.	Name of crops.	per.	Rangpur Canal		Taunsa Canal		Thal Canal	
			Class	Rate per acre.	Class	Rate per acre.	Class	Rate per acre.
				Rs. As.		Rs. As.		Rs. As.
	(*iii*) Area for which extra supply is sanctioned for reclamation purposes.	Matured area per harvest in addition to the rates in force during kharif/Rabi when extra reclamation supply is given.		6—12	VIII	6—12	VI	6—12
10.	Wheat, barley and oats (except on kharif channels).	Crop.	XI	..	..	..	..	5—0
11.	Maize ..	Crop.	X	4—12	X	4—12	VIII	4—12
12.	Unspecified crops ..	Crop.	X	5—8	IX	5—8	VII	5—8
13.	Gardens, Orchards and Vegetable sown on kharif channels during Rabi.	Gardens and orchards per half year, the rest per crop.	XII	4—8	X	4—8	IX	..
14.	Jowar, china, and grass which has received two or more waterings and all fodder crop including turnips.	Grass per half year the res per crop.	XIII	3—8	XII	3—8	X	3—8
15.	Bajra, Gram, masur and Pulses ..	Crops.	XIII	3—8		3—8	X	3—8
16.	All Rabi crops on kharif channels (including fodder but excluding gardends, orchards and vegetables).	Crops.	XIV	3—0	VIII	3—0	XI	..

Note:—Rates for Rabi crops under items other than 13 and 16 relate to perennial channels only.

17.	(*a*) Watering for ploughing not followed by a crop in the same or succeeding harvest.	..	XV	1—4	XIV	1—4	XII	1--4
	(*b*) Village and District Board Plantation-Huris							
	(*i*) Any number of watering in kharif ..	Half year.		2—8		2—8		2—8
	(*ii*) One watering in Rabi ..	Half year.		1—4		1—4		1—4
	(*iii*) Two or more waterings in Rabi ..	Half year.		2—8		2—8		2—8
	(*c*) Grass. A single watering in kharif or Rabi.	Half year.		1—4		1—4		1—4
18.	(*a*) When supply from an escape is intermittent and water is used for ploughing followed by a crop in the same harvest but not followed by any subsequent watering ..	....	XVI	1—4	XV	1—4	XIII	1—4
	(*b*) Each watering to aropped area shall be charged at 1/4th of the full water rate leviable on the crop and in additin to the Rauni ratio, if chargeable under (*a*) above provided that :—							
	(*i*) The total amount leviable for any crop shall not exceed full water rate for that crop and							
	(*ii*) Only such watering as benefits by the crop shall be charged.							
19.	Additional watering for all Rabi crops on Kharif channels (including gardens, orchards, vegetable and fodder).							
	(*a*) Single water ..	Crop.	XII	0—8	XVI	0—8	XIV	0—8

S. No	Name of crops	per	Rangpur Canal		Taunsa Canal		Thal Canal	
			Class	Rate per acre.	Class	Rate per acre.	Class	Rate per acre.
				Rs. As.		Rs. As.		Rs. As
	(*b*) Two or more waterings ..	Crop.		1—8		1—8		1—8

Proviso:— The above rates shall be charged in addition to the Rabi rates given in the schedule provided the enhanced rate does not exceed the full perennial rate applicable to the canal concerned or to the adjoining canal as the case may be.

Note:—1 The rates shown in the schedule are for flow irrigation. For Lift Irrigation half of those rates will be chargeable.

Note:—2 Hemp, indigo, gowara and jantar ploughed in as green manure before 15th September are not assessed to water rates.

Note:—3 Approved list of Fodder crops is given in annexture. A.

Note:—4 Villages under Special Schedules on lower Bari Doab, Lower Chenab Canal and Lower Jhelum Canal are shown in Annexures B, C and D, respectively.

Similarly the following statement shows the occupiers' rates applicable to Muzaffargarh inundation canals:—

Class.	Name of Crops.	Rate per acre.
		Rs. As. Ps.
I	Sugarcane, Rice, Water-nut, Tobacco, Gardens and Orchards during Kharif and Kharif Vegetables.	3—8—0
II	Cotton	3—0—0
III	Chillies, Spices, Drugs, Dyes, Kharif, Pulses and Kharif Oilseeds	2—0—0
IV	Wheat, Barley, Oats, Rabi Pulses, Rabi Oilseeds, Gram, Gardens, Orchards and Vegetables during Rabi receiving water before December 1st ..	2—0—0
V	Maize, Bajra, other Kharif crops not specified and kharif fodder crops.	1—12—0
VI	Rabi fodder crops receiving water Dec. 1st.	1—0—0
VII	Wheat, Barley, Oats, Rabi, pulses, Rabi oil-seeds, Grams, Gardens, Orchards, vegetable receiving water on December 1st or subsequently ..	2—8—0
VIII	Rabi fodder crops receiving water on December 1st or subsequently ..	1—8—0
IX	Wheat, Barley, Oats, Rabi pulses, Rabi oil seeds, Gram, Vegetables, grown on the Wadh of previous crops.	1—0—0
X	Other Rabi crops grown on the "Wadh" of previous crops. ..	0—12—0

Note:—The Rates shown in the schedule are for flow irrigation. For Lift irrigation half of these rates will be chargeable.

These rates are assessed every year on the area of matured crops. The rates of Abiana for the various canals (Chenab and Indus) were fixed differently owing to the considerable difference in the fertilising value of the silt carried by the waters of the two rivers, the difference in the quality of the land irrigated by the canals fed from the two rivers—Chenab and Indus, and the profits of the cultivators and owners derived therefrom.

All the revenue realized from the occupiers' rates goes to the Canal Department as a direct credit. It is, however, also entitled to the share of the land revenue which may be said to consist of the water advantage revenue in the canal irrigated tract where cultivation depends mainly on canals.

Area irrigated.

Out of the total area of the district measuring 35,61,117 acres, an area of 10,90,425 acres is irrigated. In the year 1920-21 the extent of irrigated area from the canal system as recorded in the old Gazetteer of the district was 3,29,915 acres. Owing to the inauguration of the three Irrigation Projects, namely Thal Project, Taunsa Barrage Project and Haveli Project Rangpur Canal. the figures of irrigated areas from Government canals have considerably increased.

Canal Advisory Committee

A Canal Advisory Committee always existed in the district with the Executive Engineer, Muzaffargarh Canal Division as President. The present Canal Advisory Committee consists of 8 members with Deputy Commissioner as its President and Executive Engineer Muzaffargarh Canal Division as its Secretary while the Extra Assistant Director of Agriculture, Muzaffargarh is designated as Convener of this Committee.

The Executive Engineer Canals, Leiah Division, Muzaffargarh Division and Kot Adu Division and the E.A.D.A. Muzaffargarh are the ex-officio members thereof. Besides the above referred official members four non-official members, are also nominated by the Deputy Commissioner as members of the Canal Advisory Committee.

Canal used for Navigation.

No canals are used for navigation purposes in this district.

Bunds.

The total length of the bunds in the district is as below:—

Indus Bunds	...	152 miles.
Chenab Bunds	...	66 miles.

The names and other particulars of bunds have already been given above.

A detailed account of fishing is given in Chapter-I. The right to fish in the dhands (depression and back-water channels) is leased every year, Similarly fishing in the Chenab and in the Indus is leased separately. Fishing.

SECTION B—FAMINE.

The Population of the district mainly depends upon agriculture in one form or other. The irrigation facilities in the district have been extended vastly. As such the district is practically immune from famine. The area matured in the famine year of 1899-1900 was 84 percent of the normal. No famine works have had to be started within recent years. During the years of drought especially in the winter season from November to February there have occurred scarcity of foodgrains in the district as a whole especially during the 2nd World War in the year 1944-46 and also in the year 1952-53 and upto 1957-58. Wheat was imported by the Government and distributed in scarcity pockets of the district through Revenue Officers at control rates. In these winter months the poor population of the district who are able bodied persons, usually migrate to the neighbouring districts of Multan and Bahawalpur and find employment to earn their livelihood. The sheep and camel owners move about in the district or elsewhere when pasturage fails. Famine.

CHAPTER IV

APPENDIX—I

The brief history of the different canals in the district as recorded in the old Gazetteer of the year 1929-30 is given below. It is important in the special and peculiar circumstances of the district as there is a tendancy for claims to be advanced on the alleged ownership of these canals since they were taken over by the Government. The expenditure by the Canal Department in recent years is not given.

CHENAB SERIES.

Karam Canal.—The canal was a creek of the Chenab called Dadal. This creek was improved by Diwan Karam Narain son of Diwan Sawan Mal, Governor of Rangpur, who spent Rs. 5,000 on the work and repaid himself by levying Rs. 5 per outlet. Owing to the action of river, the head of the canal had to be changed from time to time, the different heads being constructed with other labour.

No compensation was ever paid by Government on account of cost of land under the canal. It was originally recovered as belonging to various villages, but at the first regular settlement the entry made in the records in respect of the ownership of land was zir nala, *i.e.* under the canal. Compensation was paid only when a new head had to be excavated in the Jhang district in 1885. When the new canal rules came into force, the canal was classed as a Government Canal.

The following are the branches of the canal:—

1. Bighari, 5½ miles in length and
2. Fattu Fannakka, about 4 miles in length.

Three other branches, Jallu, Massu and Akbar, have been abandoned.

The Public Works Department spent Rs. 4,884 in 1883-89 on a rest house and chauki at Ragpur Canal Rs. 444 in 1890 on a well in the compound of the Rest House, the expenditure being met from the zari-nagha fund.

(The canal and branches mentioned above have since been abandoned and replaced by the weir control system with new names).

GANESH.

Excavated in the time of Nawab Khan by the zamindars at their own cost. It was then called the Geuswah. In the time of Diwan Sawan Mal its name was changed to Ganeshwah. The course of the canal was very tortuous, between Shahrangpur and Khanpur. In 1883 it was straightened and made parallel to the Rangpur road.

Till 1879 no compensation was paid by Government on account of the cost of land. In 1883 Rs. 512-9-6 were paid out of the zari-nagha fund as compensation for the land obtained for straightening the canal.

The following are the branches of the Ganesh:—

1. Karya-Dug at his own expense by one (Lhanju Mal) in Diwan Sawan Mal's time 115 years ago (now abandoned),
2. *Waliwah.*—Constructed in 1883-84.
3. *Khandar.*—An old part of the Ganeshwah lying in ruin, 1¼ miles long. Irrigates the neighbouring villages (now abandoned).
4. *Lunda.*—Dug by people 135 years ago at their own expenses, amounting to Rs. 500. The branch became useless and a new one was dug in the time of Diwan Sawan Mal costing Rs. 200 (now abandoned).
5. *Jalalabad.*—2½ miles long and
6. *Jagatpur.*—4½ miles long. Dug by the irrigators at their own cost.

TALIRI.—The Jhangawar canal has been amalgamated with the Taliri. It was dug by Nawab Bahawal Khan at a cost of Rs. 4,000. Owing to the action of the river, its head had to be changed from time to time. No compensation was ever paid. It had two branches, Pirwah and Makhnan, dug by the zamindars in the time of Nawab Bahawal Khan. The Alli and Khalli were also branches of it. The former was dug in the time of Diwar

Sawan Mall and the latter in the time of Nawab Bahawal Khan. No compensation was paid. These have been abandoned together with the Jhandan and Dharkanwala branches, both were dug by Zamindars.

The Taliri canal ran in the shape of a branch of the Chenab from Khudai to Kachi Saidu Khan. Owing to the action of the river, the head of the canal had to be changed from time to time. The canal was straightened and widened for 6 miles with chher-labour and Rs. 4,000 were paid out of the zari-nagha fund. No compensation was paid.

The following are the branches of the canal :—

(i) Shakh Taken Mal, or Purana Taliri. A part of the old Taliri now serving as a branch of the canal.

(ii) Wafadarpur. Remodelled by the Canal Department from Rajwah Gharbi and Sharki which were constructed with chher labour. No compensation was paid;

(iii) Hajiwah. Dug in the time of Nawab Muhammad Zaffar Khan in sambat 1845.

(iv) Ghazanfarwah. Reconstructed at a cost of Rs. 4,000 in the time of Nawab Ghazanfar Khan 140 years ago;

(v) Pirwah. Dug by irrigators in the time of Nawab Shuja Khan at a cost of Rs. 3,000 in sambat 1845.

(vi) Nargniwal. Dug by irrigators 165 years ago in the time of Nawab Shuja Khan at a cost of Rs. 3,000 (now abandoned).

(vii) *Khokhar.*—Dug by irrigators 160 years ago in the time of Nawab Shuja Khan at a cost of Rs. 4,000; and

(viii) *Nurwah* :—Dug by irrigators 155 years ago in the time of Nawab Shuja Khan at a cost of Rs. 4,000.

INDUS SERIES.

Hazara and Kot Sultan Canals.

During the reign of the Khurasan rulers, one Abdul Samad Khan, a Jagirdar, dug the Garku canal from the Chhitta creek at his own expense, and one Mian Matka widened in the time of Maharaja Ranjit Singh Owing to the action of the rivers its head had to be changed twice.

No compensation has been paid by Government for land under the canal and its distributaries, except in the following cases:—

(a) For Rajbah, Riayatwah Branch of the Mohanwah. ... Rs. 78,000

(b) For the construction of a new head and part of the Mohanwah. ... Rs. 2334/3/3

The following were the branches of the canal:—

1. *Kot Sultan*:—Dug in 1883-84 with chher labour.
2. *Hinjrai*:—An old branch of the Ghuttu. It was constructed by irrigators at their own expense in the time of Maharaja Ranjit Singh 125 years ago;
3. *Din Muhammad*:—Dug by irrigators in the time of the Khurasan rulers 155 years ago.
4. *Radha*:—Dug by the Canal Department with chher labour in 1884-86. No compensation was paid.
5. *Mohanwah*.—Dug by the Canal Department with chher labour in 1882-83. A new head and a branch were constructed in 1892 with chher labour. Now amalgamated with the Maghassan Canal.

   Sawan Mal 125 years ago. Now amalgamated with
6. *Nangni*.—Dug by Zamindars in the time of Diwan the Maghassan canal.
7. *Khan Chand*.—Dug by Matka, Kardar, in the time of the Sikhs 120 years ago.
8. *Fazil*.—Dug by Zamindars in Sambat 1919-20 under the supervision of M. Fazal Hussain Tehsildar. In 1818 its head was changed with chher labour.
9. *Panjhathi*.—Dug by Zamindars 125 years ago and;
10. *Mirwah alias Utani*.—Dug by Zamindars of Parhar Sharki and Kut in 1867-68 under the supervision of M. Mir Muhammad, Tehsildar.

The old Garku and its branches have been remodelled and the canal is now known as Hazara. There is a Kot Sultan channel and two distributaries called Tibba and Kishanwah.

The Canal Department spent the following amounts on the works noted below:—

Nala	Work	Year	Cost.
			Rs.
Hazari.	Regulator	1882-83	2,575
Gulzari	Do.	Do.	1,918
Din Muhammad	Do.	Do.	2,885
Khan Chand	Do.	Do.	2,207
Fazilwah	Do.	Do.	2,618
Nangni	Do.	Do.	1,344
	Rest-House (Karrari).	Do.	490
	Rest House (Pharhir)	Do.	2,180
	Shelter-house Gurku.	Do.	1,355
	Rest House Kot Sultan.	1888	4,358
	Villege in the compound of Rest House at Kot Sultan	Do.	442

The entire amount was spent from the zari-nagha fund.

Maghassan.—Owing to the action of the river, an old bed of the river began to run in the time of the Afghan rulers. From this bed the irrigators dug this canal.

In 1888 the Khanwah was extended, and Rs. 585/- were paid as compensation for 15.12 acres.

In 1889 again the head of this canal was straightened and 11-1-24 acres of land came under it. No compensation was paid for the land. In 1889 the Chaudhriwah was straightened and no compensation was paid.

The following are the branches of the Maghassan: —

1. *Chaudhri.*—was dug from Garku by Piara Ram at a cost of Rs. 1.300, 165 years ago in the time of Nawab Muhammad Khan. Later it was joined on to the Maghasan, Nangni and Dhol are its branches—

   (i) *Nangni.*—Dug by irrigators about 140 years ago. Its tail splits into two branches *i.e.* Nangni and Nari.

   (ii) *Mohanwah.*—(See under "Hazara and Kot Sultan Canal).

   (iii) *Dhol.*—Dug by irrigators 120 years ago, and

   (iv) *Sirmuni.*—Dug by irrigators 140 years ago.

2. *Keshio.*—Dug along the eastern side of the bund with chher labour in 1882 by the Canal Department, and extended in 1888. It has two branches—

   (i) *Ganda Bhubbar.*—Dug from the Maghassan creek 165 years ago. This branch has three sub-branches. (1) Sahju, (2) Sohni and (3) Hala (Sirre abandoned) and

   (ii) *Ganda Pah.*—Dug from the Maghassan by irrigators 145 years ago.

3. *Raju.*—Dug by irrigators in the time of Khazan Singh, Kardar 125 years ago.

4. *Karya Chaudhri and Nabiwah.*

5. *Sardarwah.*—Dug by Zamindars in the time of Nawab Muhammad Khan 165 years ago. It has the following branches: —

   (i) *Karya Muhammad.*—Dug by irrigators 125 years ago under the supervision of Sube Khan, Kardar of Muhammadpur.

   (ii) *Karya Gaman Khan.*—Dug by irrigators 145 years ago in the time of Nawab Muhammad Khan.

(iii) *Karya Khanpur.*—Dug by irrigators 125 years ago under the supervision of the Kardar of Khanpur (now abandoned).

(iv) *Karya Sanawan.*—As in (ii) above.

(v) *Karya Tej Bhan.*

(vi) *Muradwah.*—Dug in 1883-84 with chher labour under the supervision of the canal Department.

(vii) *Nangnis Kalan and Khurd.*—Both the canals were dug by irrigators in the time of the Afghan rulers some 185 years ago.

(viii) Nangni Khurd being useless for 25 years, was reconstructed in the time of Diwan Sawan Mal.

(ix) *Jan Muhammad.*—Dug by Jan Muhammad and other irrigators of Ladha Langer in the time of the Afghan rulers in Sambat 1909 (now abandoned).

(x) *Pirwah.*—Dug by Pir Shah Sanaz and other irrigators 95 years ago (now abandoned).

(xi) *Hamza.*—Dug jointly by Diwan Sawan Mal and irrigators 126 years ago (Now abandoned).

(xii) *Ghaker Khan.*—Dug twice from a dhand in Jhandir Dureja Gharbi by the irrigators of Thatta Gurmani, and then from the Maghassan creek by the Ghakar Khan before the time of Diwan Sawan Mal. It has two branches:—

(i) *Karya Khokhar, now Khakh.*—Dug by the irrigators of Khokhar 100 years ago; and

(ii) *Karya Tibbi Nizam.*—Dug by the irrigators of Tibbi Nizam 95 years ago (nonw abandoned).

(xiii) *Nala Ghuan.*—Dug by the irrigators of Sanawan and Muhammad Kot in the time of Nawab Mahmud Khan 165 years ago and.

(xiv) *Ghulamwah.*—was originally a small water-course, but afterwards was turned into a canal.

Maggi.—It was a branch of the river from which canals were dug from time to time. Owing to a change in the course of the river, it assumed the shape of a canal, and in 1883-84 it was classed as a canal.

No compensation was paid for the land under the canal. Rs. 93-1-8 were, however, paid for land acquired for a bund in Chibbar Khor serin and Sharif Chhajjra in 1889.

The following are the important branches of the canals: —

1. *Khudadad.*—Dug with chher labour in 1882-83. A new head was constructed in Thatta Gurmani in 1888. It has six branches: —

   (i) *Karya Kuhawar.*—Dug by Zamindars in the time of the Afghan rulers (now abandoned).

   (ii) *Kotwah.*—An old branch. Dug in Sambat 1912 by irrigators.

   (iii) *Haji Ishaq.*—Dug by irrigators in 1879 at a cost of Rs. 2,000, one-fourth of which was paid by the Government out of the zari-nagha fund (now abandoned).

   (iv) *Bulewali.*—Dug with chher labour in 1887 by the Canal Department (now abandoned).

   (v) *Sultan Khar.*—Dug by irrigators. and

   (vi) *Fazil Karlu.*—Dug by irrigators (now abandoned).

2. *Suk.*—It has six important branches: —

   (i) *Jakhriwah.*—Dug by irrigators in the time of Nawab Bahawal Khan.

   (ii) *Thalwah.*—Dug by irrigators in the time of Nawab Muhammad Khan. Bahawalwah and Karya Ghattawala are its branches.

   (iii) *Sanwah.*—Dug by zamindars 255 years ago in the time of Nawab Ghazi Khan. A new head was constructed in the time of Diwan Sawan Mal.

(iv) *Kalwah.*—Dug by irrigators at their own expense, amounting to Rs. 9,000, in 1840. A new head was constructed at the cost of Rs. 115 paid out of the zari-nagha fund;

(v) *Sardar Khurd.*—It was dug by irrigators in the times of Nawab Sadiq Muhammad Khan 155 years ago. A new head was constructed in Sambat 1920 (now abandoned).

(vi) *Ahmadwah.*—Was first a zamindari nala. In 1890 it was classed as a Government canal (now abandoned).

3. *Dinga.*—Has three important branches:—

(i) *Bhangarwah.*—was a zamindari nala. In 1890 it was classed as a Government canal (now abandoned).

(ii) *Sardar Kalan.*—Dug in the time of Nawab Ghazi Khan 255 years ago by Zamindars and

(iii) *Nangwah.*—Dug by irrigators in the time of Nawab Mubarak Khan 255 years ago. Ghatle and Garkanna are its branches.

Government constructed a Rest House at Kinjhar at a cost of Rs. 3,784 in 1886-87 to 1895-96, and a shelter hut of Sardar Kalan at a cost of Rs. 312 in 1896. Both the sums were met from the zari-nagha fund.

GHUTTU.

The Adilwah is now a distributary of the Ghuttu Canal. It was dug by the irrigators in the time of Nawab Bahawal Khan. Owing to the action of the river, its head had to be changed from time to time. No compensation was ever paid for land taken up.

It had nine branches, and was 10 or 11 miles long. *viz.*—

1. *Darya Khokhar.*—Dug by zamindars 200 years ago.,
2. *Karya Isa Bhabewala.*—Dug by irrigators 175 years ago.,
3. *Karya Rakba Sarkar.*—Dug by irrigators 225 years ago.,
4. *Karya Dewalewala.*—Dug by irrigators (when dug is not known).,

5. *Karya Makwalewala.*—Dug by irrigators 195 years ago;

6. *Menghwah.*—Dug by Mangha Karar, an irrigator, 165 years ago.,

7. *Paunta Malana.*—Dug by Ala Yar, Malana and other irrigators, 120 years ago.,

8. *Karya Bilochanwala.*—Dug by irrigators 70 years ago and

9. *Harpallo.*—Dug by the zamindars of Basti Jalal 200 years ago and extended lately to Harpolo.

All these branches have since been abandoned.

The Ghuttu formerly was a branch of the river Indus called Ghhitta. Several canals were dug from this branch. Its head sometimes had to be changed. In 1896-97 a new head was constructed in village Yarajoys. In 1883-84 it was classed as a canal, and the canals fed from it as its branches. A new pakka head regulator for the Ghuttu canal below the railway line was built in 1928 by the Canal Department.

Compensation was paid only in the following cases from the Zari-i-nagra fund:—

In 1887 for Kaunwah	849/14/6
In 1888 for Rajwah	809/14/3

It has the following branches:—

1. *Pir.*—Dug in Sambat 1918 by the zamindars of Paunta Malana, Bhundewali and Rohillanwali, who also spent Rs. 5,000 in cash. After some time a new head was constructed in village Fatteh Muhammad Abrind at a cost of Rs. 2,000. In 1884-85 the course of the branch was changed from Bhundewali to Rohilanwali with chher labour.

2. *Rajwah.*—Dug by irrigators 225 years ago in the time of Nawab Bahawal:

It has three branches:—

(i) *Kalan Shah.*—Dug by zamindars 175 years ago;

(ii) *Hammarwali and*

(iii) *Darin.*—Dug in Sambat 1911 by zamindars.

3. *Bahishti.*—Dug 235 years ago in the time of Nawab Ghazi Khan by irrigators. It ceased to run 40 years after and in Sambat 1918 was reconstructed by the irrigators at a cost of Rs. 9,000. It splits into two branches:—

(i) *Bakhtwah.*—Which was dug 89 years ago by the irrigators of Kadirpur and

(ii) *Azimwala.*—which was constructed with chher labour in 1883-84.

4. *Rarhu.*—Dug from chitta creek in the time of Nawab Bahawal Khan by the irrigators of certain villages at a cost of Rr. 7,000. Its head had to be changed several times. It had four branches, which have been abandoned, and now it has become a branch of Bahishti, with a distributary, Fattuhal;

(i) *Karya Fattu Mal.*—Dug by irrigators 200 years ago;

(ii) *Mohriwal.*—Dug by irrigators 200 years ago;

(iii) *Karya Jannun.*—Dug by irrigators 199 years ago and;

(iv) *Karya Tahliwala.*—Dug by irrigators 200 years ago.

5. *Sardarwah.*—Dug by irrigators 195 years ago in the time of Nawab Bahawai Khan with chher labour. It has since been remodelled and now takes off direct from Ghuttu Canal, instead of Sardarwah.

It has eight branches:—

(i) *Shujra Kassi.*—Dug in 1387 with chher labour;

(ii) *Ahmad Shah.*—When dug is not known;

(iii) *Khandar.*—Dug by irrigators 175 years and widened in 1884-85 with chher labour;

(iv) *Karam, now called Kiraru.*—Dug by irrigators 175 years ago;

(v) *Muradpuri.*—Dug by irrigators 89 years age at a cost of Rs. 3,000;

(vi) *Hajiwah.*—Dug by irrigators 77 years ago;

(vii) *Kadirpuri.*—Added by the Irrigation Department and

(viii) *Chhahtta.*—Added by the Irrigation Department.

6. *Karnam.*—Dug by the canal Department with chher labour in 1887. It has two branches:—

(i) *Ghallu;* and

(ii) Karya Muhammad Hussain and

7. *Ghallu.*—Dug by irrigators in the time of Nawab Bahawal Khan 175 years ago. It is now a branch of the Harnam.

PURAN.—

An old bed of the Indus.—Some 225 years ago Sehj Ram Kardar, constructed it by levying a chhera per well in the time of Nawab Bahawal Khan. A new head was constructed in the time of Diwan Mool Raj at a cost of Rs. 16,000 3/4th of the amount were expended by irrigators and ¼th by the Diwan himself. Owing to the action of the river, different heads had to be constructed from time to ime with chher labour.

No compensation was paid except in the following cases:—

		Acres.	
In 1888—For Lunda Branch	.. ..	185.45	
For Puran	.. .. ..	40.48	
For Rakh	.. ..	22.52	
For Ghaus pur	.. .. ..	11.12	
For Bazwala	.. .. ..	10.36	
	Total ..	269.93	Rs. 6381/10/11
In 1891.—For the construction of new heads of Bahawalwah and Julwah	.. ..	1.12/	Rs. 23/9

The following are the branches of the canal :—

1. *Karya Nabi Bakhsh Shahwala.*—Constructed at the request of the irrigators of Bet Hazari, etc., with chher labour in 1896-97.

2. *Bhakhi.*—Was constructed by irrigators 175 years ago with chher labour. Nawab Bahawal Khan paid Rs. 5,000 to assist the construction work. It has three branches—

   (i) *Karya Turk.*—Constructed by irrigators at a cost of Rs. 250;

   (ii) *Beti.*—Aided by the Irrigation Department and

   (iii) *Karya Sandilawala.*—Constructed 165 years ago by irrigators witr their own labour (now abandoned);

3. *Shakh Kaura Khan.*—Constructed in 1898-99 with chher labour at the request of Kaure Khan. It has a branch Gulwah;

4. *Khanana.*—Constructed 165 years ago by the zamindars of Bet Khanwala and Mela Chacha with their own labour. A new head was conctructed in 1889 with chher labour (now abandoned).

5. *Namana.*—Constructed by irrigators with their own labour 205 years ago (now abandoned).

6. *Kaprekhas.*—Constructed 155 years ago in the time of Nawab Bahawal Khan by the zamindars of Jhallarin (2/5th) and Wassan (3/5th) at a cost of Rs. 1,500. Rs. 100 were again spent after 30 years on the construction of a new head.

7. *Saidwah.*—Was excavated in 1884 at the request of the Zamindars of Hamzewali with chher labour, and extended to Gagrewali and Mudwala in 1892.

8. *Kutab.*—Dug by the zamindars of Shahbazpur and Jalarin 135 years ago. After 40 years its head was changed at a cost of Rs. 4,000. Extended in 1890 with chher labour.

9. *Lunda.*—Dug by irrigators 175 years ago, and extended by the Canal Department in 1888 to Ghari.

10. *Sabaiwala.*—Dug by zamindars 185 years ago. It is now a branch of the Rajwah.

11. *Pirwah.*—Dug by certain villagers at a cost of Rs. 11,000 225 years ago. A new branch was constructed in 1890 by the Canal Department. It is now a branch with Muradwah as a distributary.

12. *Punuwah.*—Dug by irrigators 135 years ago and extended to Aliwali in 1888 by the Canal Department. It is now a branch of the Rajwah.

13. *Mutwaniwala.*—Dug by irrigators 125 years ago (now abandoned).

14. *Sultan.*—Dug by irrigators 175 years ago at a cost of Rs. 400/-. It is now branch of the Rajwah.

15. *Rajwah.*—Constructed by the Canal Department in 1890-91, it has three branches:—

(i) Subaiwala; (ii) Punanwah; and (iii) Sultan.

16. *Bhagti.*—Dug in 1882-83 and extended in 1883-84 with chher labour (now abandoned).

17. *Kadra.*—Dug by irrigators 225 years ago in the time of Nawab Bahawal Khan. It had the following branches (now abandoned).

(i) Rakhi;

(ii) Bazwah and

(iii) Ghauspur.

18. *Bahawalwah.*—Dug in the time of Nawab Bahawal Khan 165 years ago. Half the amount expended on the work was paid by the Nawab, and the other half by the irrigators.

19. *Khanwah.*—Dug by irrigators in the time of Nawab Bahawal Khan 155 years ago, and extended in 1891 with chher labour.

20. *Chandar Bhan.*—Constructed by the Irrigation Department.

Suleman.—The Sohrab, now amalgamated with the Suleman of which it is a branch and takes off from Bakaini regulator, was constructed by Nawab Ghazi Khan 205 years ago at a cost of Rs. 75,000. Nawab Bahawal Khan constructed a new head 165 years ago, spending Rs. 4,000. The head had to be changed twice later on Rs. 10,550 being spent by the Nawab. In the time of Diwan Sawan Mal, the head was changed twice with chher labour. No compensation was ever given, except Rs. 791/4/7 paid for land taken up for a new head in 1896. The amount was met from the zar-i-nagha fund.

It had three branches:—

(i) *Jogiwah* (now abandoned);

(ii) *Mughalwah.*—Dug in the time of Nawab Ghazi Khan 195 years ago by one Nur Muhammad Khan at a cost of Rs. 5,000. Being useless, it was reconstructed by the zamindars of Bilowala, Kot Ratta, Khalti and Jatoi Shumali. In 1896 and 1897 it was straightened in the boundaries of Daulatwahi; and

(iii) *Rahanwal.*—Dug by irrigators 125 years ago, and extended in 1896-99.

The Suleman was dug with chher labour in the time of Nawab Bahawal Khan under the supervision of Sultan Khan from the Mochiwala creek 145 years ago. A new head was constructed in 1888-89 from Sohni creek. Since 1896-97 the old channel has been used as its head. No compensation was paid.

It has the following branches, in addition to the Sohrab:—

1. *Khanwah.*—Dug with chher labour by irrigators in the time of Nawab Bahawal Khan 155 years ago. Owing to the action of the river, its head had to be changed three times. The last one was dug from the Suleman in 1883-84. In 1889 a curve of the branch was straighten-

ed with chher labour. Its head has been washed away and a kachha head has been made direct from the Indus River.

2. *Wahli.*—Dug by irrigators 125 years ago.

It has two branches:—

(i) Alluwah and

(ii) Theri.

3. *Soharu.*—Dug in the time of Diwan Sawan Mal by the villagers of Dera and Kohar Fakiran 115 years ago. It has two branches constructed by Government:—

(i) *Haripur.*—with three branches—

(a) Lalwah.

(b) Umarwah and

(c) Gari.

(ii) *Mithanwali.*—with three branches—

(a) Yarewali.

(b) Sultanpur and

(c) Nabipur.

The former was dug in 1889 from the zar-i-nagha fund; and its branches (1) and (2) with chher labour in 1893-94 and 1891 respectively.

CHAPTER V
SECTION 'A'
STATE WASTE LAND AND T.D.A.

History of formation of Rakhs in the district.

The following extracts from Mr. O. Brien's Settlement report of the First Regular Settlement show how the Rakhs in this district were formed: —

"The Government waste land deserves mention here only to avoid misunderstanding. The district does not, like the other districts of the Multan Division, consist of a fringe of cultivation on the banks of the rivers enclosing vast tracts of waste land. I do not suppose that in the extra-Thal country, at any time within the memory of man, a block of ten thousand acres of waste land could have been discovered which was not intermixed with cultivation and habitations. In the Thal only one block of 113,613 acres could with difficulty be formed into a Rakh, and even that includes cultivated land. The misapprehension referred to is the idea that this district is similar to Multan, Jhang and Montgomery with their immense inland tracts of waste land. One of the greatest administrative mistakes that was ever made, and the disastrous effect of which has only just been removed, was to direct the waste land and grazing tax in Muzaffargarh to be brought under the same system as that in force in the other districts of the Multan Division. Similar mistakes are constantly occuring. The total area of the Government waste, by the statement of the settlement just concluded, is 311,554 acres."

"As a part of the measurements, the Government Rakhs were demarcated, and what had been a sore question since 1860 was finally decided. The demarcation of village boundaries was made, as has been stated, in 1856. It included within village boundaries all the waste land in the district. In 1860 Mr. Cust, then Financial Commissioner, declared the boundaries open to revision. In 1861, in order to carry out this order, the Deputy Commissioner, with a pencil, marked off on the revenue survey maps pieces of land shown as waste to from Government Rakhs; but no demarcation on the spot was made till 1879, when Lal Sohan Lal Extra Assistant Commissioner, was appointed to carry out the work. This demarcation followed rigidly the pencil lines of 1861, and the result was that much cultivated land, pakka wells, village sites, graveyards, public roads, and even canals, were included in the Rakhs. In 1874 a redemarcation was ordered. This has been carried out, and sanction was received to it in the correspondence noted in the margin. The area of Rakh land is 311,554 acres. The Government rights in these have been secured, in almost every case unencumbered by the inclusion of popular rights. The Rakhs

Secretary to Govt. No. 948 dated the 20th August, 1877 to Secy: to Financial Commissioner and Secy. to Govt.

have been excluded from village boundaries and made into new Rakh villages. A regular settlement record has been made for each Rakh the property of Government. No claims to rights of entry on the retained Rakh for any purpose, except a few old rights of way, were either made or admitted. Where rights of way existed, the roads have been shown on the Rakh Shajra and have been mentioned in the wasjib-ul-arz. If the road was a main road, and the right of way public, this has been recorded, and, if the right of way was restricted, the persons entitled to use it have been mentioned."

No. 685 dated the 1st June 1878, to Secy. to Financial Commissioner.

A separate record-of-rights exists for each Rakh.

History of Rakhs in Leiah Tehsil.

Of the Rakhs in the Leiah Tehsil, which are in reality, little but grass preserves, eight have come down from Sikh times, some of them dating as Rakhs from the time of the Jaskani rulers. When the country come under the Nawabs of Mankera, a series of military posts was established across the Thal, numbering 23 in all in the Leiah and Bakkar Tehsils. For the subsistence of the garrisons it was necessary to take up blocks in adjoining land and from them into preserves for the supply of forage and fuel. These Rakhs, however, never formed tracts surrounding a post, but always lay to one side thereby leaving grazing on the other sides free to the peasantry. The British Government retained these preserves, and thereby conferred a very benefit on the people. By strict closure for a month or two in the spring and again during the rains, when the grass is growing, they become reserves for great value, when the common pasturage is exhausted. It is feared, however that the contractors observe no closure, and it is difficult at present to stop this.

Demarcation of Boundaries in the Thal at 1878 Settlement.

At the 1878 settlement the question of the grazing assessment and tirni arrangements become involved with the demarcation of boundaries in the Thal waste. Hitherto, the Thal waste generally had been regarded to a certain extent as the property of Government. At the same time, certain bodies of Zamindars had exclusive rights to sink new wells in almost all parts of the Thal, except the Government Rakhs. On the other hand, there were no exclusive rights of grazing and both residents and outsiders grazed their animals freely all through the Thal, regardless of the so-called village boundaries. The Thal boundaries of villages lying partly in the Thal and partly in the kachchhi had been demarcated by the revenue survey in 1856-57, but the remaining villages had been left untouched. In about 1864, in accordance with a general order issued by the Commissioner for the whole district, the supposed boundaries of most of the remaining Thal villages were laid down by the patwaris, and rough thakbasts were made. At the 1878 settlement the whole question was elaborately discussed. The proposals made the conclusions arrived at and the reasons therefore are set forth at page 2660 ft. sq. of Mr. Tucker's "Settlement" to which the reader is referred for fuller information.

In brief, it was decided:—

(1) to respect absolutely the village-to-village demarcations of the Thal Kachchhi estates made by the revenue survey in 1856-57;

(2) in the case of those Thal estates not demarcated by Captain Machenzie, where the subsequent demarcation did not give the village an excessive amount of waste or in other words, where the estates were small and there were many wells, then the whole of the waste was to be allotted to the estate, the same boundaries being adopted, or only slightly altered and simplified; and

(3) in the case of the large Thal villages, to cut these up, as far as possible, into separate dakhili mauzas of about the same size as the smaller Thal villages mentioned above. After so doing, the intervening blocks of waste would be formed into Government Rakhs.

The principle followed was that, subject to the above rules, allotments of waste land were made at fixed rates in proportions to the cattle of each village which were enumerated. The excess waste became Government Rakh, while each village acquired the allotted waste in full propriety, and could exclude outsiders from grazing therein. Since Government and the village proprietors had hitherto had concurrent rights in the Thal-the zamindars being entitled to exclude outsiders from sinking wells, while Government could permit outsiders to graze within this demarcation partook of the nature of a partition.

The scale on which these allotments of waste was made was—

Camel and horned cattle, per head 12½ acres: 5 shares.

Sheep and goats, per head ... 2½ acres: 1 share.

In the Leiah Tehsil no special allotments were found necessary since the original mauza boundaries were much more clearly defined than in Bhakkar, and were generally retained on new Rakhs being formed, except in disputed border tracts.

Five new Rakhs formed in 1878.

As a result, five new Rakhs were formed at this settlement, with an area of 103,705 acres, and some of the old Rakhs were slightly enlarged. A few wells were unavoidably included in the new Rakhs, and some existed in the old Sikh Rakhs; these were

assessed to land revenue in the ordinary manner, while for grazing purposes they have been included in those mauzas to which by position they naturally belonged, or to which they had been previously attached before the new Rakhs were formed. The proprietors of these wells are allowed to graze their cattle within a definite area of 300 acres close to the well all the year round, but beyond these limits they come under the general Rakh rules as regards grazing fees and close seasons.

Khokhar-wala.

The only Rakh in the Kachchhi is Rakh Khokhar-wala, which consists of two separate plots, the total area of Government property being 166 acres, while 1,394 acres are privately owned. Of the Government area 150 acres have been given on lease for cultivation for 20 years or the duration of settlement to Gosain Gobind Ram, and the remainder, 16 years is waste (creeks, etc). The lessee pays malikana at the rate of 12 annas per rupee on the land revenue.

The Thal Rakh (Leiah) Lease System.

The remaining twelve Thal Rakhs are leased to contractors nominated by the Deputy Commissioner from the leading Lambardars of the adjacent villages. The leases are renewed from year to year, but usually the same persons remain for long periods. The demand is fixed for the term of settlement, and each village participating has a fixed share in the contract. Subject to the Commissioner's control, the Deputy Commissioner has powers to remit part of the demand when circumstances render relief necessary owing to drought or murrain. Fines used to be levied on all cattle found grazing in the Rakhs during the times of closure, and were appropriated by the contractor. Later, the fine system was abolished, and trespassing cattle are taken to pounds. The plough and well oxen of adjacent villages are allowed to graze free of charge, except during the close season. The grazing rates vary, but the usual scale is: —

S.No.	Cattle.	Rate per head for 12 months (In old coins.)
1.	Male Buffalo	0—8—0
2.	She-Buffalo	0—12—0
3.	Calf upto 1½ year	Free.
4.	Horned cattle cow etc.	0—6—0
5.	Calves upto 1 year	Free.
6.	Sheep and goats	0—1—0
7.	Kid upto 4 months	Free.
8.	Male camels	1—0—0
9.	She-camels	1—8—0
10.	Calves upto 1½ years	Free.

A list of Rakhs formerly all under the charge of the Deputy Commissioner but now being managed by the officers mentioned against each is given below :—

S. No.	Name of Rakh	Area in acres	Remarks.
1.	Khairewala	44,834	With T.D.A.
2.	Chaubara	16,924	Do.
3	Sher Garh	38,779	Do.
4.	Nawan Kot	55,539	Do.
5.	Khpkharwala ..	166	Do.
6.	Thalwali	40,850	Do.
7.	Tiba Mustaqil	13,459	With TDA as well as with Dy. Commissioner.
		2,10,506	
8.	Thalwali	11,363	The D.C. is incharge of the area of these Rakhs as Colonization Officer Taunsa Barrage and this area is irrigated by the Taunsa Barrage Project.
9.	Dabi Shah	974	
10.	Drig	1,868	
11.	Kut	524	
12.	Pirhar Sharqi	1,656	
13.	Ahsanpur	2,461	
14.	Pattal Kot Adu	1,846	
15.	Muhammad Bakhsh Khokawar ..	195	
16.	Ahmad Bari	329	
17.	Khulang Janubi	1,589	
18.	Manipur	722	
19.	Jarh Ratheb	367	
20.	Hassanpur Kacha	1,368	
21.	Bastijarh	888	
22.	Sarkar No. 23.	1,399	
23.	Umar Budh	307	

S.No.	Name of Rakh.	Area in acres	Remarks
24.	Mela Chacha	484	
25.	Basti Arif	1,644	
26.	Hamze Wali	2,307	
	Total ..	32,286	
27.	Makhan Bela	936	These Rakhs are irrigated from the Haveli Project System-Rangpur Canal and the Deputy Commissioner is now incharge of this area.
28.	Jalwala	1,010	
29.	Alipur	1,173	
30.	Chatwanin	640	
31.	Daira Wadhu	289	
32.	Sadewahin	640	
33.	Harpallo	456	
34.	Jogiwala	848	
35.	Khanpur	2,358	
36.	Chak No. 3/4	1,601	
37.	Chak No. 4/4-R	1,066	
38.	Cahak No. 5/4-R	760	
39.	Chak No. 6/4-R	760	
40.	Chak No. 7/4-R	1,060	
41.	Chak No. 5/4-L	990	
42.	Chak No. 6/4-L	1,349	
43.	Chak No. 7/4-L	1,040	
44.	Chak No. 2/5-R	60	
45.	Chak No. 3/5-R	77	
	Total	18,926	

Thal Development Authority and management of State Land.

The history of the Thal Irrigation Project has been discussed in Chapter IV Section A captioned Irrigation. The idea to develop Thal goes back to the year 1870. This had been postponed from time to time in favour of more lucrative projects in the former Punjab at that time. The Barrage was however completed in the year 1946 and water was allowed to pass in Thal Main Canal. The opening of Thal Canal in January, 1947 did not offer prospects of immediate gain as the original project contemplated the development of full Rabi irrigation in 15 years and full kharif irrigation in 32 years; in which period it was estimated that interest charges on the Capital expenditure on Head Works would amount 6 crores besides the expenditure on establishment and maintenance of Irrigation system. The influx of refugees, further added pressure of population on land keeping in view the hard conditions of Thal, the colossal expenditure incurred on head works and immediate problem of over population in other districts after partition, the Government decided to set up an autonomous Authority in order to speed up the development of land in Thal area and colonization. The Authority prepared a scheme to develop an area of 8,93,591 acres (6 lacs to be acquired from big land owners and 2,93,591 transferred by the state at the expense of Rs. 17.94 crores spread over 5 years which was later revised to Rs. 37.40 crores to be spent by June, 1964 since its inception. Leaving 2,81,552 acres for forest, mandies, canals, roads, charaghas, departmental reserves etc. 44,000 refugees families were to be settled. The scheme however underwent modifications from time to time and Thal Development Authority was left to develop 8,14,476 acres (3,74,807 state land and the rest acquired from local owners and evacuee owners). Besides state Rakhs outside irrigation boundary covering an area of 2,06,826 acres was also placed at its disposal for colonization and management. The terms and conditions on which entire state land was transferred U/S 30 (2) D for management and colonization are as under:--

Colonies Department No. 195 Th. dated the 14th May, 1952 of the former Punjab.

(1) No permanent or temporary alienation shall take place nor leases for more than three years be granted without the previous sanction of Government.

(2) No permanent or temporary buildings or structures shall be constructed without the permission of Government.

(3) No improvements on the land shall be made without the sanction of Government. Government shall have the right to resume the land or any portion thereof transferred to the Authority, without assigning any reason, on payment of such compensation for improvements as is adjudged by Government to be proper or reasonable.

(4) Income from permanent or temporary alienation of Government land, except income from temporary cultivation leases for a period not exceeding three years, shall be credited into the Government treasury after deducting the development charges, as may be approved by Government from time to time, for improvements made on the land.

(5) Income from temporary cultivation leases of Government land for a period not exceeding three years shall be credited into the Thal Development Authority's account.

(6) All persons holding land from Government in the area transferred to the Authority for management shall continue to have the same rights and obligations as they have on the dates of the transfer of management, and the transfer of management will in no way affect the terms of the original transfer of land to those persons.

Out of total land transferred by state or acquired by Thal Development Authority, 3,40,202 acres are situated in Muzaffargarh district. The Thal Development Authority have up-to-date carved out 631 chaks, developed 4,60,326 acres of land (development of land includes land breaking and land levelling), constructed 99,014 acres length water-courses, and built 27,957 acres length of water ways in this district. In all T.D.A. has spent 8 crores on different developmental schemes namely establishment of mandi towns. development of land, construction of roads and extension of education and medical facilities. Besides Rs. 1 crore and 80 lacs have been spent on the establishment of Sugar Mills and construction of a Base workshop for tractors and tubewell repairs at Leiah.

An idea of developmental achievements of Thal Development Authority can be had from the figures relating to land revenue collection in this District since 1947. Following table gives the break up:—

S. No.	Name of year	Land Revenue.	Abiana
1.	1952-53	25,946	21 539
2.	1953-54	29,446	1,18,479
3.	1954-55	33,406	2,30,599
4.	1955-56	36,453	3,19,012
5.	1956-57	38,792	62,18,12
6.	1957-58	40,999	7,05,735
7.	1958-59	44,821	18,46,218
8.	1959-60	47,469	13,43,462
9.	1960-61	50,121	16,85,388

The Thal Development Authority is proposing to construct Chubara-Nawankot Roads, Nawankot-Haiderabad Roads and few other roads. It has also prepared a master plan linking Noorpur Thal in Sargodha district with Rangpur in Muzaffargarh district traversing the entire greater Thal. The schemes for leasing out under Tubewell and Well Sinking scheme and under Barani cultivation in the Rakhs of Maujgarh Nawankot, Chaubara, Shergarh and Tibba Mustaqil are on the anvil. Another scheme to fight out water logging menace in this district has been prepared by the Authority. According to scheme out-lay, 200 tubewells at the cost of Rs. 45 lacs shall be sunk in worst affected areas of the district within Leiah and Kot Adu Tehsils.

Capital and Revenue expenditure incurred by TDA in the District.

The Thal Development Authority has spent Rs. 34.39 crores over the entire Thal, out of which 8 crores have been spent on different schemes of land development, colonization, health and sanitation and lay-out of roads and mandi towns in this district. As the schemes regarding the utilization of other Rakhs in the district are likely to be put into operation, in future this district is likely to claim a major share of the total expenditure on the development of land.

Headquarters of Thal Development Authority.

To start with the Headquarters of the Authority were at Shahpur within Sargodha district which were later shifted to Jauharabad (Sargodha district). Recently keeping in view the distances involved from Jauharabad to Kot Adu the Headquarters of the Authority have been shifted to Bhakkar district Mianwali. The Authority was the first Autonomous body after the partition and was the first of the kind constituted by the Government for the development of the land in the entire history of tre colonization.

Scope:—The scope and constitution of the Authority has been defined with act from Section 1 to 10 of Thal Development Act. It has been described a body corporate having 7 full members with perpetual succession. The present contitution of the Board is as under:—

1. Chairman.

1. Financial Adviser Member.

3. Colonization Officer, Member.

4. Superintending Engineering, Thal Canals, Member.

5. Director, Welfare and Rehabilitation, GHQ, Member.

6. Deputy Commissioner, Muzaffargarh, Member.

7. Deputy Commissioner, Mianwali, Member.

8. Deputy Commissioner, Sargodha (Associate Member).

It can prepare any scheme for the development of any local area and part thereof in respect of all or any of the functions enumerated in Section 21 of Thal Development Act.

1. *General Administration.*

The Authority functions on the pattern of provincial organization with Chairman as its executive head. He has vast disciplinary and supervisory powers under the Act. He is responsible for carrying out the decisions of the Board. The Chairman is assisted by the Secretary who is normally from P.C.S. cadre. The Secretary is responsible for co-ordinating the activities of the various formations of the T.D.A. after seeking approval of chairman on all administrative policy matters, planning work and establishment. He is primarily concerned with the execution of the orders passed by the Chairman and the Authority and thus carries out inspection of each formation occasionally.

2. *Financial Adviser.*

The Finance Department of the Thal Development Authority is headed by Financial Adviser who is normally an officer of the rank of Deputy Secretary of the Central Government. He is member of the Authority. He is responsible for the proper up keep of the accounts, bank transactions, progress reports, import of machinery, recoveries and foreign exchange requirements. He examines all schemes which involve expenditure of more than 5,000/- and his advice is binding on the Authority. In case of any difference of opinion the matter is referred to the Finance Department.

Colonization Department.

The Colonization Department is headed by an Officer of the status of the Deputy Commissioner. He is a member of the Authority. He has got 3 Extra Assistant Colonization Officers with headquarters at Jauharabad (Sargodha district), Bhakkar (Mianwali district) and Leiah (Muzaffargarh district). The day to day problems of the people are attended to by the concerned E.A.C.Os.

Under the Colonization Officer there is a Land Acquisition-cum-Land Control Officer who is responsible for the keeping of proper accounts of T.D.A lands. The Land Acquisition Officer

is also a Land Acquisition Collector under Land Acquisition Act. Subject to the control of Colonization Officer, he is responsible for the recoveries due from settlers in lieu of the lands granted to the colonists under different schemes namely, peasant proprietory scheme, well and tube-well sinking scheme, garden-cum-Nursery scheme and auction of land scheme. The total recoverable amount comes to Rs. 18 crores which are recoverable upto the year 1990 in 70 easy instalments. Yearly due recoveries come to Rs. 1.35 crores. The following table shows the total area (state and T.D.A.) disposal off in Muzaffargarh district so far:—

S.No.	Scheme,	Area in acre. (State land)	(TDA land
1.	Auction	12243	82850
2.	Fixed Price	..	63278
3.	Plots and Buildings	..	..
4.	Tubewells	2400	..
5.	Peasant Grant	..	84240

The Authority is the final body under the Thal Development Act for any scheme for all functions. In respect of TDA land and in respect of State land the Authority seeks prior approval of the Government. The powers of the Government were proviously exercised by Colonies Department but recently the same have been delegated to the Agricultural Development Corporation.

Agricultural Machinery Organization TDA.

The achievement of Agricultural Machinery Organization has been described in Chapter 3 Section 'B'. It is headed by an officer of the rank of Superintending Engineer. He has got 3 Divisional Engineers under him two being incharge of the field units and the 3rd being incharge of the Base Workshop Leiah. There are 10 Assistant Engineers (Operations) incharge of field units under Divisional Engineer (Operations). The Machinery Organization has got a fleet of 265 tractors and is working on the basis of no profit no loss. The Headquarters of the Agricultural Machinery Organization are situated at Leiah. The Machinery Organization offers facilities both on cash and on credit. In case of credit indents are placed by Colonization Officer and the land is levelled in the presence of the colonists according to indents. In case of hire on cash the money is deposited with Director, A.M.O. and the land is levelled. The rates per hour for the different types of tractors and buldozers are as under:—

S. No.	Type of machine	Rate per hour.
1.	D—4 (7-U Series).	Rs. 20/-
2.	D—4—C	Rs. 27/-
3.	TD—9(91 Series).	Rs. 18/-
4.	TD—9 (92 series)	Rs. 25/-
5.	TD—18A.	Rs. 29/-
6.	D-6	Rs. 21/-
7.	Motor Carder	Rs. 23/-

The rates are far cheaper than that of rates prescribed for hiring out of the machinery by Agricultural Department. But in case of the Agriculture Department, the machinery is hired out at subsidized rates by 50%.

The Thal Development Authority has other departments *viz.*, Construction Division headed by Divisional Engineer (Construction), Cottage Industries Department headed by Director Cottage Industries, Education Department headed by Education Officer, Agriculture Department headed by Agricultural Officer, Veterinary Department headed by Director Farms and Information Section headed by Information Officer. All the officers excepting Information Officer are of the status of Deputy Director in the Senior Class-I scale. The Construction Department is responsible for the construction and maintenance of roads and T.D.A. buildings, the Medical Department looks after the health of the residents of Thal area by provinding dispensaries and hospitals, the Education Department primarily concerned with opening of new schools upto Matric standard and Cottage Industries Department imparts training to surplus man power of the settlers in Carpet making, utensil making and furniture making etc. Information Department maintains liaison with Information Department and also gives publicity to T.D.A. activities in Particular and Government activities in general. The Animal Husbandry was previously concerned in developing pedigree cattle, sheep and poultry, but it has now undertaken extension work also. The Thal Agricultural Institute has also been established to train the settler's sons in practical agriculture. The electricity department which provided electricity to chief Mandi Towns was transferred to WAPDA in the year 1958. A credit of Rs. 1.00 crore was given to the Authority for the assets transferred to WAPDA.

Afforestation.

The Authority in its original scheme reserved 1, 20,000 acres for afforestation at a cost of Rs. 1.10 crores. To give practical shape to the scheme, a full fledged Forest Department was set up. An area of 1,19,198 acres throughout the Thal was made available for afforestation. This area on account of scarcity of water, was reduced to 60,000 acres under the advice of Thal Revision Committee. Later on in 1958 the entire Department with Forest reserves was transferred to Government for which a credit of Rs. 1.00 crore roughly has been agreed to be given to T.D.A. in addition to the land to be made available in lieu of the area transferred to Government. In Muzaffargarh district the area transferred to Forest Department comes to 36,484 acres. The total area under Forest (including under management) in this district is 1,99,777 acres as per details given below:—

S. No.	Name of Division	Protected Forest.	Unclassed Forest
1.	Bhakkar Division. ..	4000	There is an area 1,05,000 acres under range management with Bhakkar Forest Division in Muzaffargarh district.
2.	Leiah Division ..	..	32484-Notification for declaring reserve forest has not been issued.
3.	Muzaffargarh Division.	58295.46	57509.34

There are two full-fledged Forest Divisions Leiah and Muzaffargarh both under the charge of Conservator, Multan. The types of the forest and their location is given below:—

Muzaffargarh Fores Division.

The Forest/Rakhs under the Divisional Forest Officer, Muzaffargarh are being worked according to a sanctioned working plan drawn up by a D.F.O. for a period of 20 years *i.e.* from 1947-58 to 1967-68. Most of the Forest/Rakhs in this division have popular plantation. All operations are carried out departmentally. The matured trees are cut and the area is regenerated by setting root sucker in one foot deep planting. This method is used in popular forests. In other bela lands afforestation is done by Kikar sowing after the recession of floods and by shisham planting in best shaped pits.

Wherever irrigation water is available the irrigated plantation are being raised by standard technique.

Timber and firewood is obtained either by thinnings or from fellings. The thinnings are carried out departmentally and the material so obtained is sold. In case of main fellings (felling of mature trees) the crop is sold standing. The disposal of forest produce is always by open auction. Most of forest produce is taken to Multan where it is consumed as firewood and Timber.

People in the vicinity of Forest areas mainly depend upon Forest flora for grazing their cattle. There is no provision for direct supply of firewood or timber to individual. However, the inhabitants near about the forest get sufficient employment as various forest works remain in progress throughout the year. Grazing facility is provided to more than 20,000 cattle from the Forests grazing lands annually at nominal charges.

During world war II the bulk supply of firewood has been made from the Forests of this division. This flood affected people and their cattle get refuge in Forest Areas. Forests are protected against fire attacks by undertaking timely anti-fire measures, like control on burning of inflamable material, clearing fire lines and clearance of boundaries.

The working of the Forests in the Muzaffargarh Forest Division is carried out under the supervision of one Divisional Forest Officer, with headquarter at Muzaffargarh. This division is split up into four ranges at Muzaffargarh, Alipur, Jatoi and Ghazi Ghat under the charge of a Range officer each. These four Ranges have been divided into 14 Blocks and 65 beats Blocks are looked after by a Forester and beat by a Forest Guard.

A note on the popular and other Forests in Muzaffargarh Forest Division recorded by Divisional Forest Officer Muzaffargarh, is given below:—

Popular and other Forests of M. Garh Forest Division.

"Total area of Muzaffargarh Forest Division is 1,15,804.3 acres which can be split up as under:—

(i) Protected Forests ... 58,295.46.

(ii) Unclassed Forests ... 75,509,34.

PROTECTED FORESTS SECTION 'B'

No. 1. *Issanwala.*

Issanwala has a total area of 7072 acres. This was transferred to Forest Department in the year 1907. The Forest lice by

the side River indus and has been completely under River action. About 5,000 acres are under River bed. The remaining 2,072 acres are under popular Forest which is being worked under a sanctioned working plan. The regeneration is trenched. The area is almost fully stocked and has variation in age which corresponds to working plan.

No. 2. Dandiwala.

Dandiwala protected forest has a total area of 917-79 acres. This was transferred to Forest Department in the year 1906-7. The Forest contains popular crop 10 to 12 years old. The area is being worked under sanctioned working plan. The old popular crop was cut down 10 to 12 years back, and the area was regenerated by containing root sucker. The regeneration was supplemented by artificial planting of shisham. Shisham makes a mixture of about 10%.

No. 3. Ranuja.

Ranuja has a total area of 1,329 acres. This was transferred to Forest Department in the year 1906-7. This Forest contains old popular crop and is being worked under a sanctioned working plan. 4 Cusecs of irrigation water could be obtained from Dinga and Dibba Shah Minor and 200 acres has been converted into irrigated plantation of shisham on this water. The age of the shisham crop varies from two to 13 years.

No. 4. Sohni.

Sohni has a total area of 696.86 acres. This was transferred to Forest Department in the year 1906-7. Almost whole of the area is covered with old crop of popular which is being worked under sanctioned working plan. In various years while regenerating the areas, shisham and kikar have been introduced for supplementing the popular crop. Almost whole of the area has been regenerated by now.

No. 5. Ghazi Ghat.

Ghazi Ghat has a total area of 2,106 acres. This was transferred to Forest Department in the year 190617. It contains shisham and popular crops, both in pure and mixed block. Almost whole of area under popular crop has been regenerated according to the prescriptions of the sanctioned working plan. In about 400 shisham has been raised which is one of the best quality shisham of the province.

No. 6. Sarwani Bela.

Sarwani Bela, situated on the west Bank of Chenab River, has a total area of 1,509 acres. This was transferred to Forest Department in the year 1906-7. The forest is liable to River action and 250 acres are under River bed. About 400 acres are very badly infested with kalar. Trials were made to leach out the salt by flooding water in plots and rice cultivation. The experiment has been abandoned because the sanction for the reclamation shoots expired. The remaining area is under kikar and shisham crops which has been raised during the past year.

No. 7. Khudai.

Khudai Forest has a total area of 2,431 acres. This was transferred to Forest Department in the year 1908-9. 100 acres have been planted up with kikar and shisham. The remaining area is almost blank and very badly infested with kallar. Experiments for reclaiming the area were made during past, but no material result has been obtained so far.

No. 8. Jhallarain.

Jhallarain Forest has a total area of 1,984 acres. This was transferred to Forest Department in the year 1907. 360 acres have been planted up with shisham and kikar. The remaining area is being protected for the improvement of vegetation. No afforestation could be done for want of flood inundation or canal irrigation.

No. 9. Bet Mir Hazar Khan.

Bet Mir Hazar Khan Forest has a total area of 3,600 acres. This was transferred to Forest Department in the year 1907. About 1,000 acres have been converted into irrigated plantation. The remaining area is being developed through Temporary Cultivation and will be afforested in the recent future.

No. 10. Bakaini.

Bakaisi Forest has a total area of 1,908 acres. This was transferred to Forest Department in the year 1907. About 600 acres have been converted into irrigated plantation. The remaining area is under popular crop of various ages which is being worked under the sanctioned working plan.

No. 11. *Chinamalana.*

Chinamalana Forest has a total area of 4180-1-18 acres. This was transferred to Forest Department in the year 1907. It was a reverain Forest, but flood has ceased inundating it. The area has been regenerated from time to time under the prescription of sanctioned working plan. The area will be converted in irrigation plantation when canal water supply is made available.

No. 12. *Damberwala.*

Dambewala Forest has a total area of 3035.66 acres. This was transferred to Forest Department in the year 1907. The Forest contains scattered growth of popular. The crop is degenerating as the flood has stopped reaching the area due to defence bund of the Punjnad Head Works. About 100 acres have been planted on Head Works. About 100 acres have been planted up on hand watering.

No. 13. *Aliwali.*

Aliwali Forest has a total area of 4,629 acres. This was transferred to Forest Department in the year 1907. Nothing has been done in the area due to extreme saline nature of the soil except that experiment over an area of about 100 acres, have been done to find out the suitable steps and method for afforesting the area.

No. 14 *and* 15. *Alipur and Khaira.*

(i) Alipur Forest has a total area of 1,332 (ii) and Khaira Forest has a total area of 987-60 acres. These were transferred to Forest Department in the year 1907. Nothing has been done except protecting the existing vegetation.

No. 16 *and* 17. *Chiri and Latti.*

(i) Chiri Forest has a total area of 1312.64 (ii) and Latti has a total area of 715.60 acres. These were transferred to Forest Department in the year 1907. Nothing has been done except protecting the existing vegetation.

No. 18. *Bet Dewan Sahib.*

Bet Dewan Sahib Forest has a total area of 3164.32 acres. This was transferred to Forest Department in the year 1907. Natural vegetation is being preserved. Kikar has been sown over an area of about 100 acres.

No. 19. *Khanwah.*

Khanwah Forest has a total area of 1,696 acres. This was transferred to Forest Department in the year 1907. Old crop is being protected. Kikar has been introduced over an area of about 200 acres, during the last 5 years.

No. 20. *Chandia.*

Chandia Forest has a total area of 168 acres. This was transferred to Forest Department in the year 1946. Old crop is being protected.

No. 21. *Dhaka.*

Dhaka Forest has a total area of 2,302 acres. This was transferred to Forest Department in the year 1907. The old land and Lai is being protected.

No. 22. *Billawala.*

Billawala Forest has a total area of 840 acres. This was transferred to Forest Department in the year 1945. The area is under good popular crop of various ages and densities. It is being worked according to the prescription of the sanctioned working plan. However, in about 20 acres shisham has been raised on hand watering.

No. 23, 24 *and* 25. *Sultanpur, Khanani and Missan Kot.*

(i) Sultanpur Forest has a total area of 536 acres, (ii) Khanani has a total area of 720 acres and (iii) Missan Kot has a total area of 702 acres. These Forests were transferred to Forest Department in the year 1946. The present vegetation is being protected.

No. 26. *Langer Wah.*

Langer Wah Forest has a total area of 866 acres. This was transferred to Forest Department in the year 1946. The present vegetation is being protected.

No. 27, 28. *Thul Mengraj and Kohir Piran.*

(i) Thul Monghra Forest has a total area of 701 acres and (ii) Kohir Piran has a total area of 332 acres. These were transferred to Forest Department in the year 1946. The entire area is almost under River bed.

No. 29. Parara.

Parara Forest has a total area of 588 acres. This was transferred to Forest Department in the year 1907. 350 acres have been planted up with kikar and the remaining area contains Jand and Lai.

No. 30. Khairpur Para.

Khairpur Para Forest has a total area of 1,014 acres. This was transferred to Forest Department in the year 1946. Almost half of the area is under River Bed. The vegetation of remaining area is being protected.

No. 31. Kotli Lal.

Kotli Lal Forest has a total area of 603 acres. This was transferred to Forest Department in tre year 1946. Existing vegetation is being protected.

No. 32. Sirki.

Sirki Forest has a total area of 558 acres. This was transferred to Forest Department in the year 1946. About 200 acres have been put under kikar crop. 200 acres are under River bed and the remaining area bears old vegetation which is being protected.

No. 33. Mohib Shah.

Mohib Shah Forest has a total area of 628 acres. This was transferred to Forest Department in the year 1947. The area has just come out of River bed and is almost blank.

No. 34. Baqir Shah.

Baqir Shah Forest has a total area of 1,341 acres. This was transferred to Forest Department in the year 1947. This has almost gone under the River bed.

No. 35. Tibba Nur Copang.

Tibba Nur Copang Forest has a total area of 568 acres. This was transferred to Forest Department in the year 1947. The whole area is under River bed.

No. 36. Kunal Sandila.

,Kunal Sandila Forest has a total area of 496 acres. This was transferred to Forest Department in the year 1958. The

whole of the area has been sown with kikar during the last 2 years. The success is patohy.

No. 37. *Kotla Sadat.*

Kotla Sadat Forest has a total area of 571 acres. This was transferred to Forest Department in the year 1958. Whole of the area has been attempted for afforestation by kikar and shisham during the last two years.

UNCLASSED FORESTS.

No. 38, 39. *Sabhan Machhi and Ahmad Mohana.*

Sabhan Machhi Forest has a total area of 641 acres and Ahmad Mohana Forest has a total area of 2,370 acres. These were transferred to Forest Department in the year 1958. These areas have just come out of River bad.

No. 40. *Khanpur.*

Rakh Khanpur Forest has a total area of 53226.20 acres. This was transferred to Forest Department in the year 1953. In 1,200 acres, where canal irrigation was available, irrigated plantation of kikar and shisham has been raised. The remaining area was protected by controlling grazing and cutting to improve the vegetative cover and to prevent shifting of the sand dunes.

No. 41. *Bet Qaim Shah.*

Bet Qaim Shar Forest has a total area of 1,278 acres. This was transferred to Forest Department in the year 1949. The area has been recently come out of the River bed. 50 acres have been planted on hand watering of shisham.

The figures of Revenue and Expenditure for the last three years are given below:—

Year	Revenue.	Expenditure in rupees.
1959-60	..R . 1,33,366.38	3,46,656.65
1960-61	..Rs.1,57,564.74	3,49,531.02
1961-62	..Rs. 1,65,452.39	3,35,776.10

CHAPTER-V-SECTION B.

Forest (contd.)

Leiah Forest Division

Leiah Forest Division, though originally started by the Thal Development Authority in the year 1952-53, was merged in the present Leiah Forest Division in the year 1957. The charge of the Thal Development Authority was transferred to the Provincial Government in April, 1958. All the expenditure incurred on the establishment of the Plantations, pay of staff, construction of building etc. have now to be paid over to the Thal Development Authority by the Provincial Government. The headquarter of the Division is in Mandi Town Leiah. As stated already compact plantation at Rajan Shah comprising of 4000 acres of land, out of which, 3700 acres have been afforested upto 30-6-62, lies within Leiah Tehsil of Muzaffargarh district but is under the management of Bhakhar Forest Division. It is run by a Range Officer, two Block Officers and nine Forest Guards.

The work in the Leiah Forest Division is supervised by one Forest Officer, two Forest Rangers, one Deputy Ranger, 15 Foresters and 108 Firest Guards. For efficient management and control of Forest planted up area in this division, has been divided into beats which is the lowest unit and comprises about 500 acres of land. Each beat is locked after by a Forest Guard, who is responsible for the protection and for the operation required in that beat. Four to five beats constitute a Block under the charge of a Block Officer. In the Leiah Forest Division two to five blocks constitute a Range under the charge of a Range Officer or a Deputy Ranger. The following table will show various rangers, the rank of the range Incharges and places of their headquarters: —

Name of Range.	Headquarter.	Range Incharge	F ster.	Forest Guard.
1. Machhu Range	.. Machu Forest Colony.	Forest Ranger		
2. Inayat Range	.. Do.	Do.	15	108
3. Leiah 1st	.. Leiah	Do.		
4. Leiah 2nd	.. Do.	Deputy Ranger		

The following is note giving the description of various forests and other points regarding Leiah Forest Division prepared by Divisional Forest Officer, Leiah.

Description of various forests.

Leiah Forest Division comprises of the following four ranges with an area mentioned against each:—

Name of Range.	Total area in acres.	Area planted upto 30-6-62.
Machhu Range	12,294	4,628
Inayat Range	9,618	3,040
Leiah 1st Range	4,168	2,102
Leiah 2nd Range	6,404	2,102
	32,484	11,872

The forests in this division comprise of the following types:—

(*i*). *Compact or block plantations.*

In this category 7,666 acres of planted up area in Inayat and Machhu Ranges may be included. The total area under this category is about 21912 acres. It has been divided into 50 acres for each compartment. The compartments are numbered serially in each of the above two ranges. There is no regular working plan or any working scheme for Leiah Forest Division and planting is carried out according to programme sanctioned annually by the Chief Conservator of Forest Multan Region, and depends upon the availability of funds and supply of irrigation water. The area is being planted with the help of irrigation water supply through various Distributaries and Minors of the Thal Canal system. Each year a total area of about 1500 acres is taken up and got levelled through machinery by the Agricultural Machinery Organization Branch of T.D.A. The plantation procedure is the same as adopted in other irrigated plantations in the West Pakistan. The water supply is very defficient and amounts about ¼th the water supplied in other regular plantations.

(*ii*). *Srelter belts.*

Originally it was decided by the Thal Development Authority to raise a 275 feet deep belt of forest trees along both sides of Mianwali-Muzaffargarh Road, but unfortunately the

land for this puprose was not made available and shelter-belts have been raised over a total length of 17 miles only belts works expected reduce the velocity of storms, check the advancing sand dunes and thus protect this important High-way. Piece meal raising of belts will not very effective.

(iii) Crak plantations.

The Thal Development Authority originally planted to provide a 50 acres piece of forest in each chak in order to cater for firewood, timber and grazing needs of the inhabitants of the chak. Land in 164 chaks was earmarked for this purpose, out of which 138 chak plantations have been raised. Each chak, as mentioned earlier, is a 50 acres piece of land usually situated at the head of an outlet. The plantations also have been raised with the help of canal irrigation. Total area under these chak plantations is 8809 acres, out of which 3,742 acres has been planted at present.

(iv) Canal plantations.

A single row of avenue both sides of canal, about 737 miles in length within Leiah Tehsil has been transferred to the Forest Department since July, 9161. Out of which 258 miles were already planted by the Canal Authority and 147 miles have been tackled by the Forest Department. The age of the oldest plants along the canal is about 10 years.

(v) *Roads.*

, About 186 miles of roads in Leiah and Kot Adu Tehsils have been transferred for raising avenue and strip planting during this year. Out of this total area about 11 miles were planted by the B&R of P.W.D. Since taking over of the roads Forest department has tackled 38 miles. The special feature of planting along roads in Leiah and Kot Adu. Tehsils is raising of avenue lines through hand-watering. For this purpose water is made available by digging kacha wells where water table has risen from 4 to 8 ft. and by providing hand-water pumps where ground water is deeper.

CHARACTERISTICS OF TREES.

The chief species raised in the above plantations is shisham (Dalbergia sisso) planted at 10′×6′ spacing. The other species tried are fresh (tamarix articulate), ber (zibyphus jujuba) Sirs (Albizziz Labbek) Mulberry (Morus Alba), simal (Salmalia Malbari Kiker (Acacia Arabica) etc. Species like fresh, Ber and Kikar are planted on Tibbas and high lined areas. While Shisham is the most successful species, Fresh does well on tibbas kikar at places has died due to corgestion and perhaps due to frost, Mulberry under planting is also under trial.

System of management, control and disposal of produce.

The system of management is the same as mostly in other irrigated plantations of the West Pakistan like Pirawala, Chichawatni etc. The crop consists of mainly shisham. No clearing and weedings is required, as very little grass appears even with irrigation.

First and end thingings are done departmentally at the age of six years and 12 years respectively. The cut produce is stocked along, the compartment roads and disposed off in open auction. Twenty years and forty years have been fixed as explotation period for fire-wood and timber respectively. The firewood is taken to Lahore, Multan and Rawalpindi by contractors mostly for consumption. Local consumers have also started buying fire-wood for local use. Firewood rates for the last four years as obtained through open auction are as follows:—

1959-60	Rs. 21.54	per 100 c. ft.
1960-61	Rs. 20.00	Do.
1961-62	Rs. 22.22	Do.
1962-63	Rs. 30.58	Do.

Relations with people, supply of local needs, fuel and fodder reserve.

The relations with people remained cordial excepting where the area of a local zamindar happened to fall inside forest reserved. For instance the private land in bits exist right inside compact plantations of Machhu and Inayat and lot of difficulty is being faced in relations to protection of young crop and distribution of water. Efforts are being made to consolidate private holdings and to exchange areas with forest area on the boundary of forests.

The surrounding people, at present, do not press for supply of any firewood material. The timber is not available from the forests which are still in infant stage. Firewood from the shrubby growth is available in plenty from the undeveloped areas.

Not much grass is available for grazing cattle in the forest but by artificial irrigation of the area these plantations will automatically afford large fodder reserve in future. Recently the Forest Department has embarked upon a scheme of replacing state waste Rakhs by planting a grass which grows in extreme dry conditions. Reference is invited to Chapter J for detailed stuly. Range Management

Utility of Forest Rakhs.

The forest plantations can be of great help during the scarcity of fuel and fodder, although no demand has been put up by the public as yet. There is no problem of preventing forest fire in this Division. Some of the forest plantations however suffered from water logging.

Income and expenditure.

Average income and expenditure from forest Rakhs for last three years ending June, 1962 is as under :—

Year.	Revenue.	Expenditure.
	Rs.	Rs.
1959-60	57,860 ..	6,63,709,00
1960-61	30,241 ..	5,24,120,00
1961-62	99,258 ..	7,07,028,00

A list of the Rakhs Forests under the charge of the Forest Department is given below :—

Serial No.	Name of Rakh Forest.	Approximate area.	Range.
		Acres.	
1.	Sarwani Bela	1509.96	Muzaffargarh.
2.	Khudai.	2430.11	Do.
3.	Jhalarian	1984.00	Do.
4.	Kotla Sadat	571.00	Do.
5.	Kanal Sadila	368.00	Do.
6.	Rakh Khanpur	51475.00	Do.
7.	Sohni	696.86	Ghazi Ghat.
8.	Ranjja	1322.00	Do.
9.	Dandewala	916.79	Do.
10.	Issanwal	7072.62	Do.
11.	Ghazi Ghat	2706.23	Do.
12.	Saban Machhi	641.00	Do.
13.	Bet Qaim Shah	1278.00	Do.
14.	Ahmad Mohana	2370.00	Do.
15.	Bakaini	1998.00	Do.

Serial No.	Name of Rakh Forest.	Approximate area	Range.
		Acres.	Ghazighat.
16.	Chinamalana	4180.24	Do.
17.	Bet Mir Hazar Khan I	1291 00	Do.
18.	Bet Mir Hazar Khan II	2309 00	Do.
19.	Belawala	840 00	Do.
20.	Kulewali	477.00	Do.
21.	Bet Dewan Sahib	3164.32	Alipur.
22.	Dambarwal	2612.66	Do.
23.	Mud Wala	423 00	Do.
24.	Alipur	318.55	Do.
25.	Khaira	987.65	Do.
26.	Aliwali	4629.00	Do.
27.	Latti	715.70	Do.
28.	Giri	1312.64	Do.
29.	Khanwah	1695.00	Do.
30.	Parara	588.00	Do.
31.	Dhaka	2302.00	Do.
32.	Sultanpur	536.00	Do.
33.	Khanani	720.00	Do.
34.	Mission Kot	702.00	Do.
35.	Langarwan	866.00	Do.
36.	Thul Meg Raj	701.00	Do.
37.	Kohar Piran	538.00	Do.
38.	Chandia	168.00	Do.
39.	Sarki	558.00	Do.
40.	Kotli Lal	603.00	Do.
41.	Baqir Shah	1341.00	Do.
42.	Mohib Shah	628.00	Do.
43.	Khairpur Para	1014.00	Do.
44.	Tibba Noor Gopang	568.00	Do.

CHAPTER V—SECTION 'C'

MINES AND MINERALS.

General. No mineral of importance is produced in the district. Earth salt used to be manufactured but this is now prohibited and the production of saltpetre is also extinct. Similarly kankar, which used to be extracted from some Rakhs unler the management of Deputy Commissioner on permits for burning lime and other purposes, is scarcely taken out at present, owing to the development of Thal area as a result of canal irrigation.

CHAPTER VI—SECTION 'A'
COMMERCE.

Commerce.

This district contributed little to the trade of the region in pre-partition days. After partition, however, the refugees as well as local evinced keen interest in commerce. A marked improvement in transport facilities too has contributed towards the growth of the trade. Formerly chief means of transportation were either camels or pack animals. Minor traffic passed through river boats. The construction of pacca roads after partition and increase in railway traffic helped the growth of trade. The colonization of waste land in Leiah and Kot Adu Tehsils has further improved the position.

Chief exports of the district are Mangoes, dates, wheat gur, cotton, ghee, wool, eggs, hens and date-mats (Taddis etc). Since the establishment of Leiah Sugar Mills sugar is also one of the chief items of export from the district. Principal imports are cotton and woollen piece-goods, metals, salt and other articles of domestic consumption.

Method of trade.

After the exit of Hindu middle man the system of disposing agricultural produce immediately after harvesting has ceased. The utility of storing his surplus, produce for some time is known to Zamindars. The general practice is that the surplus produce is disposed off to a village merchant who takes it to nearest adda on pacca road wherefrom it is either sent to big mandi town in the district or to other district for disposal. Wheat and cotton are generally sent to Multan whereas fruits are sent to Karachi. The traders are either refugee businessmen from Rohtak and Hissar or members of the old local artisan families.

Centres of trade.

Formerly there were one or two towns in the entire district which had a population of more than 10,000. Now not only old towns have grown in population but new towns too have also cropped up. Now each Railway Station or each crossing on the Mianwali Muzaffargarh Road is a business centre. Trade flourishes at Chowk Fatehpur, Chowk Azam and Chowk Patal Munla. These Chowks were formerly desolate places but now they are busy and prosperous places. Old mandi towns namely Leiah, Shehr Sultan, Kot Adu, Muzaffargarh, Khangarh and Alipur, are now prominent trading centres.

Means of trade.

Formerly traders used to rely on camel and river traffic. after partition whereas camels have retained some importance for transporting goods from village to the pacca roads, river

traffic has more or less become extinct. Now chief means of transport are railways, trucks, bullock carts, buses and tongas. There are 14 transport companies, 3 goods transport companies and four taxis in the district.

The Board of Economic Enquiry Punjab conducted a survey in the year 1954-55 with a view to determine the role of road transport in the growth of economy in Pakistan. The survey revealed that total number of vehicles registered in Muzaffargarh district during 1947-53 was 42 as compared with 16,756 registered in the old Punjab. This shows that number of the vehicles in the district are not yet enough to cater for the demand of the district. It is also a common experience, that number of the passengers keep waiting for hours together on Mianwali Muzaffargarh Road. Special attention is required to increase the number of route permits in the district particularly in between chowk Fatehpur and Muzaffargarh on Mianwali Muzaffargarh Road and Taunsa Head Works Rangpur Road via Daira Din Punnah-Patal Munda road.

CHAPTER VI—SECTION 'B'

INDUSTRIES

Industrially the district may be classed as backward. No large scale industry excepting Thal Industries Sugar Mills Leiah has so far been established. In certain respects the cottage industries too have also suffered after partition. The Ivory work and Bow Makers industries have completely died out. In private sector, the statistics supplied by the Board of Economic Enquiry on the basis of survey conducted by it reveal that the industrial capital is very shy. Number of registered private factories which employed more than 50 labourers after partition was 13 from 1948 to 1952 as compared with 2,640 in the old Punjab. The number of workers who remained employed was almost negligible. The following are the major industrial units in the district:— Industries.

(1) *Thal Industries Sugar Mills, Leiah.*

The sugar mill was established by the Thal Development Authority in the year 1953-54. The crushing capacity of the mill is 45 lakhs maund per season. The actual crushing averages between 50 to 60 lakhs maunds. It employed 1200 persons annually.

(2) *Cottage Ginning Industry.*

There are 22 cotton ginning factories in the district situated at Muzaffargarh, Khangarh, Manka, Sherpur Saadat, Shehr Sultan, Jatoi, Alipur, Daira Din Panah, Ehsanpur, Sanawan and Kot Adu. Most of them, however, remain out of commission and few of them work to their designed capacity.

Following are the chief cottage industries in the district:—

In almost every village of the district common country cloth is woven on local Khaddis, which is generally white in colour. Besides blue cloth with red or yellow stripes is also made for ladies wear and some sort of striped cloth is woven and used as "Manjhli" by the local population. In Leiah good quality of Khes, checked cotton cloth and the like are manufactured. All kinds of country cloth manufactured locally is the outcome of hand-spinning in the district. Cotton spinning is mostly done by Charkhan, the use of which is very common in the rural areas The Board of Economic Enquiry (Punjab-Pak) conducted a survey of West Pakistan including Muzaffargarh district and published its report in 1951 entitled as "The Future of Charkhas in the Punjab". This survey was undertaken in 1949-50 with the object Cotton Weaving.

of determining the role of hand spinning in our rural economy. For this purpose 19032 families in 100 villages of Punjab (Pak). were surveyed. Out of which 444 families in 5 villages were in Muzaffargarh district. The following tables give the comparative statistics relating to the Province and Muzaffargarh district:—

TABLE—I

	Muzaffargarh	Punjab
1. Es'imated number of Charkhas	23,826	6,74,508
2. Charkha used for spinning	14,129	4,45,023
3. Percentage distribution of total families :		
(a) Families owning Charkha	16	42
(b) Families using charkha but do not spin ..	26	20
(c) Families not owning charkhas	58	38

TABLE—II.

Showing annual per capita consumption of cloth in yards.

Category of families.	MUZAFFARGARH			PUNJAB		
	Mill made	Hand spun	Total per capita.	Mill made	Hand spun	Total per capita.
Spinning families.	5	8	13	6	10	16
Non-spinning families ..	5	8	13	6	8	14

There are three hand-loom units styled as Amin Textile Afaq Hosiery and Pakistan Khadian in Kot Adu Tehsil of Muzaffargarh district. But all these units have been lying closed since long. There is no silk weaving carpet and rugs or em broidery factory in the district.

Printing on Fabrics.

Although there are no printing of Fabcric Industry units in the district yet the printing of cloth work locally known as Chenbas on the ladies wea (Bochhan and Ghaghra—Petti-coat) and cloth for quilts (Siraks) or Jajam (colouring cloth) is done at Karor, Leiah Dera Din Panah, Kot Adu, Khangarh and Alipur. No carpets are manufactured in the district. Country blankets are woven from Sheep Wool especially in the Thal. The Industry is excellently carried out in Leiah Tehsil.

Taddi-malting and Basket.

Taldi matting is made of the date leaves by local as well as refugee settlers in the entire district, and chiefly at Rampur, Miran Hayat, Lutkharan in Muzaffargarh Tehsil, Dera Din Panah and Gujrat in the Kot Adu Tehsil. There are two varieties of Taddi-

fine and coarse. The former is used on cots and the other for the floor. In Alipur Tehsil baskets (Taungs) Murhas (Seats) etc., are made mostly at Khairpur.

Kuppis made of skin were once used for holding ghee and oil but the availability of tins have deminished the use of Kuppis by the public at large though some of the residents of Thal areas are still in possession of such kuppis. Kuppis.

There are no regular tanneries in the district, but the Mochis (Shoe Makers) follow the old crude method of curing the skin with lime-chuna and tanning with the bark of kikar. The trough is called 'kunal' and the skins filled up with the tanning fluid are hung on trees or on wooden pests erected for the purpose. Leather Tanning.

Rope-making is an important industry in the district. This work was done by Labanas Sikhs, in pre-partition days but now it is being done by incoming muslim refugees as well as by locals. Munj kana (saccharum mujna) is beaten into fine fibres, which are twisted together on a kind of spindle and made into ropes. Ropes are also made of date leaves by similar process. These ropes are used locally and are also exported. There is a "Ban" making Factory at Kot Adu. Rope making and Munj making.

Wood work is done in Alipur and Leiah Tehsils where samples of beatifully coloured spinning-wheals (Charkhas), legs of beds, Dabis, "Madhanis" etc, are manufactured. Wood works.

CHAPTER VI—SECTION 'C'

MEANS OF TRANSPORTATION

Railway

The district is served by a branchline of the Pakistan Western Railway built in 1886. It enters the district from Multan by Chenab Bridge and runs through the northern half of the district turning northwards along the eastern bank of Indus. Principal railway stations are Muzaffargarh, Mahmoodkot, Kot Adu, Derah Din Panah, Leiah and Karor. Other flag stations are Chenab West Bank, Gurmani, Sanawana, Ahsanpur, Thal Sohaya, Kot Sultan, Jaman Shah, Dorrata and sourthern Sohaya. Survey of a line linking Kashmor to Peshawar *via* Taunsa Barrage, has been completed.

Roads.

Total road mileage in the district is 828 miles of which 341 miles are class II metalled and 380 miles are class III roads. The rest are unmetalled fair-whether village roads. A new road has been constructed since the Thal Development Authority came into being which connects Muzaffargarh Mianwali. This road runs almost north to south and is popularly known as Mianwali Muzaffargarh Road east to west links from this road connect the towns of Karor and Leiah. A pucca road connecting Leiah with Gar Maharaja has also been constructed.

There is heavy road traffic, through this district on the National Highway and between Multan and Dera Ghazi Khan. The district has now been connected with Dera Ghazi Khan by an all-weather pacca road over Taunsa Headworks.

Camels and Donkeys have been the most popular means of transport in rural areas. With the development of pacca roads motor buses and trucks are playing in large numbers. Tongas also ply in large numbers on roads around Muzaffargarh, Kot Adu and Leiah towns. The following table gives the breakup of roads:—

Class I roads.

S. No.	Name of road.	Length (miles) Metalled.	Unmetalled	Total
1.	Leiah Garh Maharja Road	50.80	..	50.80
2.	Dera Din Panah-Rangpur road	36.50	3.75	39.25
3.	Taunsa Barrage-Leiah road	5.75	..	5.75
4.	Pak Highway Punjanad to Chenab ..	64.58	..	64.58
5.	Muzaffargarh-Bewetta Road	19.85	8.12	27.97
6.	District Court Road M-Garh.	0.54	..	0.54
7.	Khushab-Muzaffargarh	53 48	..	53 48
8.	Mianwali M-Garh Road	82.00	..	82.00
9.	Leiah Shehr Sultan		2800	Under Construction.

Class II Roads.

S. No.	Name of road.	Pacca	Katcha	Length
1.	Karor Fatehpur	16.0	..	16.0
2.	M. A. P. Jatoi	7.4		7.4
3.	Khangarh-Kinjhar Khas	,,	12.00	12.0
4.	Karmadad Qureshi Dera Din Panah ..	35.0		35.0
5.	Leiab Tail Indus road	10.0		10.0
	Total ..	68.4	12.00	80.4

The above roads are being maintained by the PWD B & R Department which has two Provincial Sub-Divisions at Muzaffargarh and Leiah each under the charge of Sub-Divisional Officer (Construction). The greatest effect of the road development in this district has been on the development of mandi towns at chowk Fatehpur *i.e.*, on the junction of Karor Fatehpur; Chowk Azam *i.e.*, on the junction of Leiah and Chauk Azam and Pattal Munda on the junction of D.D. Panah-Rangpur. Another highway has been planned by TDA to connect Rangpur with Noor Pur (Sargodha District) via Mankera (Mianwali District) Nawan-Kot, Chaubara, Shergarh which will open up the greater Thal.

Under the rural works programme great many roads are being built.

The rest of the roads in the district are maintained by the district council. The names of the II and III class roads are given below:—

S. No.	Name of road.	Mile and Furlong.
1.	M-Garh Mahmood Kot-Sanawan	34—0
2.	Daira Din Panah-Jharkil	59—0
3.	M-Garh-Mondka-Kinjhir	17—0
4.	Sher Sultan Jatoi-Khairpur Sadat-Sitpur	32—0
5.	Alipur Sitpur Dhaka	33—0
6.	Alipur Jatoi	10—0
7.	Kinjhar-Damarwala-Jatoi	40—0
8.	Kinjhar-Qureshi	15—0
9.	Alipur-Khairpur-Bara	14—0
10.	Kot Sultan-Pir Jaggi	12—0
11.	Rohilanwali-Mahra Shajra	12—0
12.	Kot Adu Sheikh Umar	6—0
13.	Shehr Sultan Damanwala	6—0

S. No.	Name of road.	Mile and Furlong.
	III Class Roads.	
1.	Kot Adu-Bukhhi-Langer Sarari Raighat	30—0
2.	Sanawana-Munda	25—0
3.	Kot Adu Munda via Nur Shah	19—0
4.	Sanawan Bukhi	4—0
5.	Sanawan Thatha Gurmani	3—0
6.	Mahmood Kot Gujrat D. G. Khan Ferry	14—2
7.	Khangarh Sujha Abad Ferry	2—0
8.	Murad Abad Rajghat Ferry	4—0
9.	Bacca-Ghalwan Wasandewal -Umarpur	15—0
10.	Aludewali Jatoi	16—0
11.	Jatoi-Dhaka via Sultanpur	33—0
12.	Jatoi-Madwala Chenab Ferry	12—0
13.	Alipur-Kindrala-Ghunighet	5—0
14.	Sanawan-Dogar Kalsara-Khar Gharbi	7—0
15.	Mahmood Kot to Railway station	2—4
16.	Gurmani village to railway station..	1—0
17.	Thatha Gurmani to Gurmani	3—0
18.	Leiah Mautkani..	10—0
19.	Leiah Khokhar wala	12—0
20.	Leiah-Nurewala	10—0
21.	Chaubara-Nawakot	14—0

There are other village roads which are less important. The total mileage of these unmetalled II and III class roads, mentioned above under the District Council is 572. Some of the roads which orginally belong to the District Council have been taken over by the Provincial Government and are now being maintained by it. Some of the District Council roads are kacha and require the spreading of straw to admit wheeled traffic. The District Council gets grant-in-aid upto 60% from the Government for the management of these roads. The bunds maintained by the Canal Department and canal banks are also motorable.

Rest Houses. There are 45 Rest Houses in the district maintained by various Department namely Civil, P.W.D. (B&R), Police, TDA, Railway and Irrigation. The following list gives the particular of each Rest House:—

S. No.	Department to which the rest house belongs.	Name of place (Rest House).
1.	Civil Department.	Leiah.
2.	Do.	D. D. Panah.
3.	Do.	Muzaffargarh.
4.	Do.	Kot Adu.
5.	Do.	Alipur.
6.	Do.	Shehr Sultan
7.	Do.	Karor.
8.	Do.	Chaubara.
9.	Do.	Muzaffargarh Dak Bungalow.
10.	P. W. D. (B & R) Department.	Wasandewali (Inspection Bungalow).
11.	P. W. D. (B & R) Department	Ghazi Ghat.
12.	T. D. A. Department	Leiah.
13.	Railway.	Chenab West Bank.
14.	Police Department.	P. S. Sitpur.
15.	Do.	Mahmood Kot.
16.	Do.	P. P. Munda.

S. No.	Department to which the Rest House belongs.	Name of place (Rest House)
17.	Irrigation. ..	Jaona.
18.	Do. ..	Kirariwala.
19.	Do. ..	Panjnad No. 1
20 .	Do. ..	Panjnad No. II.
21.	Do. ..	Muzaffargarh.
22.	Do. ..	Kinjhar.
23.	Do. ..	Jatoi.
24.	Do. ..	Dambarwala.
25.	Do. ..	Bara.
26.	Do. ..	Shujra.
27.	Do. ..	Hamzewal .
28.	Do. ..	Bet Warianwala.
29.	Do. ..	Leiah (Canal Colony)
30.	Do. ..	Inayat at Tail Munda
31.	Do. ..	Chauk Munda at Tail-Inayat Disty.
32.	Do. ..	Batehpur.
33.	Do. ..	Indus at Tail Indus.
34.	Do. ..	Kot Adu.
35.	Do. ..	Kot Sultan.
36.	Do. ..	Chaudhri.
37.	Do. ..	Sanawan.
38.	Do. ..	Hinjrai
39.	Do. ..	Machhi.
40.	Do. ..	Rao Bela.
41.	Do. ..	Basira.
42.	Do. ..	Khudai.
43.	Do. ..	Khangarh.
44.	Do. ..	Rangpur.
45.	Do. ..	Langer Sarai.
46.	Do. ..	Rohillanwal..

Some of the Rest Houses, originally maintained by the old District Board, have since been transferred to P. W. D. but are under the charge of the Deputy Commissioner. The Police Rest Houses are generally old structures, but are still well maintained by the Police Department. The Canal Rest Houses are well maintained. A Session House at Muzaffargarh is usually available for the stay of judicial officers namely for Sessions Judges and Additional Session Judges on tour.

Encamping Grounds.

There are still some Military encamping grounds at Mahmood Kot, Sanawan, Ghazi Ghat, Qureshi etc. A few encamp ing grounds have been surrendered.

Sarais.

There is a Sarai at Leiah under the charge of the Municipal Committee, Leiah and the oarai at Muzaffargarh, Mahmmod Kot and Sanawan are in the charge of the District Council. Muzaffargarh.

Steamer and Ferry Service

A steamer-service is available at Ghazighat on Indus connecting the district with Dera Ghazi Khan during summer while a boat bridge is erected by the P.W.D. on this route during the winter season.

A large number of ferries also exists on Chenab and Indus These areleased out yearly by the District Council. The income for the year 1961 62 was Rs. 57,640/-.

CHAPTER VI—SECTION 'D'

MEANS OF COMMUNICATION.

Postal arrangments.

The postal arrangements of the district are under the charge of the Superintendent Post Offices, Muzaffargrah. The Muzaffargrah postal Division comprises of the entire district of Muzaffargrah Dera Ghazi Khan and some part of Mianwali district The Superintendent Post Offices is assisted by one Office Supervisor, 3 Inspectors with Headquarters at Muzaffargrah, Dera Ghazi Khan and Bhakkar each and 9 Clerks at Muzaffargrah in the Head Office. There are 14 Sub Post Offices with 71 branches spread throughout the district. The Post Offices are at Alipur, D.D. Pannah, Ghazi Ghat, Jatoi, Karor, Kot Adu, Kot Sultan, Leiah Bazzar, and Leiah Mandi Town, shehr Sultan, Taunsa Barrage and Muzaffargrah Night Post Office. The Sub Offices and the branches attached to them are given below: —

Sub-Office.	Branch Office.
Muzaffargarh Head Office.	Alipur Shumali. Alipur. Basira. Bhutanpur. Bindaishaq. Budh. Dammarwala Shumali. Darin Doab. Basti Gujja. Gujrat. Harpallo. Kallarwali. Keenjhar. Khanpur Shumali. Khuaishi. Khudai. Langar Sarai. Mahmood Kot P. S. Mahmood Kot Town. Mahra. Maharpur. Mochiwali. Moradabad. Wasandewali. Muzaffargarh Normal School. Rangpur. Rohillanwali. Sharif Ghhajra. Thatha Qureshi. Taliri.

Sub-Office.	Branch Office.
Alipur.	Belewal.
	Gabbar Arain.
	Jahanpur.
	Jhalarian.
	Jhuggiwali.
	Khairpurpahra Bhambri.
	Khairpur Sadat.
	Khundai.
	Medwala.
	Ghalwan.
	Sabalwala.
	Sarki.
	Sitpur.
	Sultanpur.
Dera Din Panah.	—
Ghazighat.	—
Jatoi.	—
Karor	Fatehpur.
	Karror Nasheb.
	Laskaniwala.
	Marhanwali.
	Sunjhisra.
	Warasiran.
Kot Adu	Ahsanpur.
	Betdabli.
	Chaudhri.
	Dayachokha Gharbi.
	Gurmani.
	Kokharwala.
	Munxa.
	Patti Ghulam Ali.
	Sanawan.
	Thatha Gurmani.
Kot Sultan	Chak No. 110 TDA.
Leiah.	Chak 270 TDA.
	Chaubara.
	Jamman Shah.
	Khokhar Isra.
	Kot Lahaji Shah.
	Nurewala Pakka,
	Ladhana.
	Shahpur.
	Sumra Nasheb.

The Postal department is contemplating to provide every Union Council with a post office at its headquarters. The Department is also taking keen interest in popularising the savings scheme.

The post is transmitted by railway as well as by lorry. Where neither railway nor lorry traffic is available, arrangements for the transmission of the post through tongas or dak runners have been made throughout the district.

Telegraph Office.

Besides there are the following 8 sub post offices in the district where telegraph service is available: —

Head Office.	Sub Office.
1. Muzaffargarh.	1. Alipur.
	2. Khangarh.
	3. Ghazighat.
	4. Kot Adu.
	5. Taunsa Barrage.
	6. Kot Sultan.
	7. Leiah.
	8. Karor.

Telegraphic messages can, however, be sent from Kinjhar, Rangpur, Rohillanwali, Shehr Sultan, Jatoi, Sitpur, and Daira Din Panah post offices which are allowed to book them (when they are sent to the nearest telegraphic offices). Such telegraphic messages can be sent along the railway line through the railway telegraph. The Canal Department has also set up a telegraph line along the rest houses situated in the district especially on the main canals though only for official purposes.

Telephone Exchanges.

There are two telephone exchanges in the district installed at Muzaffargrah and Leiah. Muzaffargrah is a 50 lines automatic installed exchange established on 11-8-56. There was not much demand upto the end of the year 1959. Total working connections were 33. In the current year, however, the demand has increased. At present 42 connections and 6 extensions are working. There is a demand for new connections and there is a proposal to instal 100 line C.B. exchange in the next financial year. This exchange is connected with Multan.

Leiah Telephone Exchange is a 50 lines automatic exchange installed on 31-8-55. Due to shifting of Thal Development Authority's offices from Bhakkar to Leiah the demand has increased. 39 main and 7 extensions are working at present. There is a pending demand. The system is proposed to be increased by 100 lines C.B. exchange in the next financial year. This exchange is connected with Bhakkar.

Public Call offices

There are three public call offices in the district one each at Leiah, Kot Adu and Muzaffargarh installed in the post office buildings.

The Post and Telegraph department was brifurcated in December, 1960 into the following two departments:—

(i) *Telecommunication Department.*

This department deals with the entire communication system worked by wireless, machine etc.

(ii) *Postal Department.*

This department deals with the entire communication done by post-cards, envelops etc.

The Postmaster General has become the Head of the Postal Department while the control of the Telecommunication Department in each Division vests with the Divisional Officers designated as Divisional Engineer (Telegraph). The Superintendent Post Offices is the immediate officer incharge of the postal department in Muzaffargarh district while the Sub-Divisional Officer (Telegraph) Multan is exercising control over the working of the telecommunication department in the district.

CHAPTER VII
SECTION—A
ADMINISTRATIVE DIVISIONS.

General.

The executive and revenue administration of the district is under the control of the Deputy Commissioner who is in turn subordinate to the Commissioner, Multan Division whose headquarters are at Multan. The District and Sessions Judge, Multan is the judicial head who is further assisted by an Additional District and Sessions Judge, Multan. The Deputy Commissioner is assisted in the administration of the District by two Sub-Divisional Officers with their head-quarters at Alipur and Leiah respectively. Besides a Revenue Assistant, Treasury Officer and an Additional Magistrate (General Assistant) are also appointed to assist the Deputy Commissioner for administrative and judicial work.

Revenue Work.

The Deputy Commissioner is also the Collector while the Revenue Assistant and both the Sub-Divisional Officers exercise powers of Collectors subject to the control of the Deputy Commissioner. Table 33 of Volume B of the District Gazetteer gives a distribution list of the Government Officers. The institutions of the Zaildars and Inamdars have since been abolished.

Tehsils.

The Muzarffargarh Tehsil comprises of 423 villages. The Tehsildar is assisted by 3 Naib Tehsildars (two at the headquarters and one stationed at Rangpur which is a Sub-Tehsil. The subordinate revenue staff consists of 9 Kanungos, 115 Patwaris, one Office Kanungo and one Naib Patwari.

The Kot Adu Tehsil comprises of 155 villages. The Tehsildar is assisted by one Naib Tehsildar at Headquarters. There are 5 Kanungos, 65 Patwaris, one Office Kanungo and one Naib Patwari.

Alipur Tehsil comprises of 207 villages. The Tehsildar is assisted by one Naib Tehsildar at headquarters. The subordinate revenue staff consists of 8 Kanungos, 90 Patwaris, one Office Kanungo and a Naib Patwari.

The Leiah Tehsil comprises of 170 villages. The Tehsildar is assisted by one Naib Tehsildar at the headquarters. The subordinate revenue staff consists of 5 Kanungos, 60 Patwaris, one Office Kanungo and one Naib Patwari.

Besides the above Revenue Staff the following additional revenue staff is posted in the various Tehsils under the Killabandi.

Consolidation (since amalgamated in Revenue staff under Deputy Commissioner) and Thal Colonization Officer in the district:—

Operation.	Name of Tehsil.	No. of Tehsildars.	No. of Naib Tehsildars.	No. of Kges.	No. of Patwaris.	Remarks.
Killabandi.	Muzaffaarh		1	3	12	Killabandi Tehsildar is incharge of both Tehsils.
Do.	Kot Adu.	1	1	3	12	
Do.	Alipur.	1	3	9	30	
Consolidation of holdings.	Muzaffargarh	1	5	20	100	Tehsildar (Cons.) is incharge of both the tehsils.
Do.	Alipur.		1	4	20	
Do.	Kot Adu.	1	4	16	80	Do.
Do.	Leiah.		1	1	20	
			EACO.	*Tehsildar.*		
Thal Colony and Kot Adu Tehsils.	Leiah	1	1	6	..	

The Extra Assistant Colonization Officer (EACO) Leiah exercises his jurisdiction in the Thal Colony area of Leiah and Kot Adu Tehsils under the over all charge of the Colonization, Thal Project Colony, Bhakkar.

All the Tehsildars and Naib-Tehsildars exercise powers as Assistant Collectors 2nd grade under the Land Revenue Act and as Magistrate II and III Class.

Criminal work.

The Deputy Commissioner is the District Magistrate and is assisted in Magisterial work by an Additional District Magistrate at the headquarters, one General Assistant, one Treasury Officer as Magistrate and two Sub-Divisional Magistrates, at Alipur and Leiah respectively. The Revenue Assistant being an E.A.C. is also invested with the powers of a Magistrate and is entrusted with the Magisterial work by the District Magistrate. All these Magistrates exercise 1st Class powers while the District Magistrate, Additional District Magistrate and Sub-Divisional Magistrate, Alipur have powers under Section 30 and Section 260 of Criminal Procedure Code (Summary Powers) with powers to hear appeals from the orders of the II and III Class Magistrates in their respective jurisdictions. The General Assistant, Muzaffargarh is also exercising powers under Section 30 of the Criminal Procedure Code. All the Tehsildars and Naib Tehsildars are invested with the powers of II and III Class Magistrates respectively.

Police Prosecuting Staff There is a Public Prosecutor for the District at Muzaffargarh. There are also two Police Prosecuting Inspectors at Muzaffargarh, Leiah and Alipur.

Jirga. Jirga system has been revived under Criminal Law Amendment Act, 1963. The right of secret enquiries and conviction on the basis of it has been taken away. The accused has been given privilege of being defended by a lawyer.

After the abolition of Punchayat System the union Councils under the Provision of Basic Democracies Order 1959, have been invested with Powers to bring about conciliation and also inflict penalties for the offences annexed in the schedule of this chapter.

Civil Works The District and Session Judge, Multan visits Muzaffargarh once in a month for a week to dispose of judicial work in Muzaffargarh district. Similarly the Additicnal District and Sessions Judge, Multan visits Muzaffargarh for 10 days in a month for the disposal of the judicial cases in this district. Besides, one Senior Civil Judge is posted at the headquarters. He is assisted by another Civil Judge of the IVth Class at Muzaffargarh who visits Alipur Tehsil for a week or so for the disposal of civil cases. Similarly one Civil Judge IVth Class is posted at Leiah Tehsil headquarters. The District and Sessions Judge, Multan is also the Senior Special Judge of Muzaffargarh District, who disposes of special cases against Central Government servants. The Senior Civil Judge, Muzaffargarh is also Rent Collector for the disposal of rent cases.

Police and Jail. Police arrangement and Jail administration have been discussed in Section C of Chapter VII.

Court of W'rds. There is no estate in the District now being administered by the Court of Wards.

Deputy Commissioner's Establishment. The Deputy Commissioner's establishment at Muzaffargarh is as follows:—

Name of post.	Permanent.	Temporary	Total.
Superintendent	1	..	1
Head Vernacular Clerk	1	..	1
Head Treasury Clerk	1	..	1
Stenographer	1	..	1
Assistants	7	..	7
Senior Clerks	12	1	13
Junior Clerks	72	23	95
Leave Reserve Clerks	8	..	8
Daftari	1	..	1
Darbans	3	..	3

CHAPTER VII

SECTION—B—CIVIL AND CRIMINAL

Criminal. The Criminal statistics of the District (*see* Table 34 of Volume B) shows an over all increase of criminal work. The number of murder cases has increased to a large extent. Similar is the position of crime of violence and hurt. This increase is attributed to the general increase in the population in the district and the colonization of the Thal areas. Most of the cases relating to crimes of violence are the result of quarrels over women or canal water, which ultimately lead to party-factions. The figures for the year 1961 show an increase in dacoity cases also. Petty thefts and cattle lifting cases are common in the district. There has been a continuous increase since partition in abduction cases both of un-married and married women excepting that cases of abduction of married women have gone down during the last year probably due to Family Laws Ordinance.

Civil. Table 35 of Volume B will show that civil litigation in the district mostly relates to pre-emption suits. The money suits-commercial cases have decreased to a large extent. This is attributed to the exodus of non-muslims from Pakistan after partition. Rent restriction cases have, however, increased as the permanent rights in houses and shops have since been conferred upon the allottees by the Settlement Department. There are no Honorary Sub-Judges in the district now.

Customary Law. The Revised Customary Law in the district was compiled by Mr. J. D. Anderson in the last Settlement.

The Bar. There are 37 pleaders at Muzaffargarh, 12 at Leiah and 8 at Alipur. The Public Prosecutor is also Government Pleader and there is an Official Receiver in the District.

Petition-Writers. There are 13 petition writers at Muzaffargarh, 7 at Leiah 5 at Alipur and 3 at Kot Adu.

Registration. The Deputy Commissioner is the ex-officio Registrar; under him a Joint Registrar (T.O.). does all the registration and mis-

cellaneous registration work and is responsible for the maintenance of old records. The Tehsildars of Muzaffargarh, Kot Adu, Leiah and Alipur with their Naib Tehsildars stationed at Headquarters of Tehsil are ex-officio Sub-Registrars for their respective Tehsils.

Before partition in the year 1947 there were two non-official Sub-Registrars; one for Muzaffargarh and other for Leiah Tehsil, which ceased to exist after partition. The statistics in Table 37 of Volume B of Gazetteer will show that the work of registration had considerably increased in the year 1952 to 1958. This can be attributed to the development of the Thal Project and Taunsa Barrage Project where there had been a free sale and purchase of landed property especially in the Thal Regions of the district. For the sake of public convenience Secretary TDA has been vested with powers of Sub-Registrar throughout Thal area (within the jurisdiction of T.D.A.).

CHAPTER VII

SECTION—C POLICE AND JAIL.

Subject to the general supervision of the District Magistrate the Police force is under the control of a Superintendent of Police who is assisted by one Deputy Superintendent of Police, Inspectors and other Police Staff sanctioned by the Government from time to time. There are 18 Poilce Stations in the district *viz*:—

Divisions.

Muzaffargarh Tehsil.

1. Muzaffargarh Sadar.
2. Khangarh.
3. Rangpur.
4. Qureshi.
5. Kinjhar.
6. Rohillanwali.

Two out-posts, namely Langar Sarai and Khudai are also attached with Muzaffargarh and Rangpur Police Stations, respectively:—

Alipur Tehsil.

7. Alipur.
8. Sitpur.
9. Kundai.
10. Jatoi.
11. Shehr Sultan.

One temporary out-post is located at Punjnad Head Works attached with Alipur Police Station:—

Kot Adu Tehsil.

12. Kot Adu.
13. Mahmood Kot.
14. Daera Din Pannah.

Three out-posts, Munda with Daera Din Pannah, Sanawan with Kot Adu and Ghazi Ghat with Mahmood Kot Police Stations are also functioning:—

Leiah Tehsil

15. Leiah.
16. Chaubara.
17. Karor.
18. Kot Sultan.

Besides, there are four City Police Posts at Muzaffargarh, Khangarh, Kot Adu and Leiah.

The total strength of Police force under S.P. is as under:— Staff.

1.	Deputy Superintendent of Police.	...	1
2.	Inspectors of Police	...	5
3.	Sub-Inspectors of Police	...	33
4.	Assistant Sub-Inspectors of Police	...	36
5.	Head Constables	...	77
6.	Foot Constables	...	550
7.	Mounted Constables	...	5
	Total	...	707

Temporary staff.

1.	Sub-Inspector	...	1
2.	Assistant Sub-Inspectors	...	4
3.	Head Constables	...	13
4.	Foot Constables	...	78
	Total	...	96

From the sanctioned strength of the District, two platoons are built up as 1st and 2nd Reserve (Sanctioned by the Government as a striking force to meet emergency in the district. Under recent orders of Inspector General of Police, a contingent of two A.S.Is., four Head Constables and 36 Foot Constables, has been formed as 3rd Reserve (striking force) whose duty is also to control and maintain law and order in disturbed areas. Reserves.

Special punitive police.

There is no punitive police post in this district.

Rural Police.

The rural police is subject to the rules laid down under the Punjab Laws Act, IV of 1872. The appointment, dismissal etc., of its members is vested in the District Magistrate. Due to the enforcement of the Basic Democracies Ordinance 1959 the operational control over chowkidars has passed on to the Union Councils/Union Committees. They are however, enjoined by law to co-operate with the regular police in detection of crime and apprehension of undesirable persons.

Thikri Phara is enforced when necessary. It has been adopted voluntarily in many villages.

Railway Police.

The Railway Police is under the control of Superintendent of Police (Railways), Lahore. Its duty is to prevent and detect crime in the train in particular and to prevent and detect crime within the Railway boundaries in general. With this object in view a nucleous force has been attached with each train. Besides Railway Police Posts at Mahmood Kot, and at Leiah with one Head Constable and two Foot Constables at each have been established. Both these Railway Police Posts are attached with Railway Police Station Multan.

C.I.A.

A special force headed by one Inspector, C.I.A., for the detection of old, complicated and time consuming cases have been posted in the district. He discharges his function under the direction of the Superintendent of Police. Normally any case irrespective of jurisdictional limitation of the police stations in the district can be given to C.I.A., staff. In a way their jurisdiction extends throughout the district. However, at present C.I.A., staff is working at the following places:—

(1) C.I.A. staff, Sadar Muzaffargarh.

(2) C.I.A. staff, Jatoi.

(3) C.I.A. staff, Leiah.

(4) C.I.A. staff, Alipur.

System of crime detection.

A case is reported either by a complainant or chowkidar to Union Council or a Police Station. The copy of the F.I.R. is sent to Illaqa Magistrate. In serious case like murder or dacoity a special report is sent to Illaqa Magistrate. One officer is deputed by S.H.O. to conduct investigation, take evidence for and against the accused, and to keep a memorandum of the proceedings of the day. This memoranda known as Daily Diary is

transmitted to D.S.P. or Inspector incharge. To substantiate oral evidence, finger print system is in use in the district, and works in cooperation with the Finger Print Bureau at Lahore.

During summer, when rivers are in spate, much of the district is under water for about 4 months, making the passage across them of cattle impracticable, except at certain fixed places technically called jhokas, or drifts, where the current forcibly strikes against the land. During this period police parties, assisted by private persons, patrol the river banks, or canal banks to detect the cases of stolen cattle and other articles. A number of criminals are caught red handed. But there are greater chances of misuse of this system because of patent members of the Nakabandi party and for want of actual patrol. Nakabandi

JAILS.

There is a district jail at Muzaffargrah town which was established in 1906 with accommodation for 70 male and seven female prisoners. The Deputy Superintendent Jail is incharge of the Jail while Treasury Officer, Muzaffargarh acts as Superintendent under the control of the District Magistrate.

"Ban" and "Niwar" making are the industries carried out in this Jail. These products are supplied to Government Departments. Other products from the Jail garden, surplus to their requirements are sold to public in open auction. The cost of maintenance of each prisoner is worked out to be Rs. 1.12. The total population of this jail as reckoned in Octobler, 1962 is 218.

	Males.	Females.
Convicts	89	—
Under Trial	124	4
B-Class convict	1	—

The Assistant Surgeon Incharge of the Police Hospital is also Medical Officer of the Sub-Jail. Medical charge.

There are three judicial lock-ups at Muzaffargarh, Leiah and Alipur. Judicial Lock-up.

There is no reformatory Jail in the district. Cases are sent to the Reformatory School at Lahore. Reformatories.

CHAPTER VII

SECTION—D BASIC DEMOCRACIES AND MUNICIPAL COMMITTEES.

General.

The old system of local and Municipal administration introduced in this country in the year 1850 was based on the Philosophy of administrative convenience and expediency. It underwent some modifications from time to time yet its philosophy remained the same. Different institutions owed their existance to different Acts namely Punjab Municipal Act 1911, Punjab Small Towns Act 1922, Punjab District Board Act 1883 and Punjab Punchayat Act. This system was replaced by the Basic Democracies Ordinance in the year 1959.

This system has various tiers with different institution at each level. At the first level the institutions are:—

1. (a) Union Council for Unions in rural areas.
   (b) Union Committees for Unions in rural areas.
   (c) Town Committees in small towns.
2. At the second tier the institutions are:—
   (a) Tesil Councils for each Tehsil in West Pakistan.
   (b) Thana Council for each Thana in West Pakistan.
   (c) Municipal Committee for each major town.
   (d) Cantonment Board for each Cantonment area.

At the third level there is District Council for each district and at the fourth level there are Divisional Councils for each Division.

At the lower level the Union Council constitutes a number of villages and comprises a population of 8-10 thousand. Municipal Committee are set up where the population is about 14 thousand or more. The members of the Union Councils are elected directly by the people to start with. Nomination are also made but gradually the nominated element is being eliminated Union Committees have all elected members. Thereafter all the Chairmen of the Union Council constitute a Tehsil Council and all the Chairmen of Union Committee constitute Municipal Committees. The official members are nominated in the Tehsil Council. The District Council consists of the official and non-official members. The official members include the Chairmen

of Tehsil Councils and Municipal Committees in the district, and the representatives of the beneficient Government Department working in the district. Out of non-official members, one half are chosen from amongst the Chairmen of Basic Democracies and the other half represent minorities, women and other interests. The Divisional Council is also constituted like District Council. It consists of official and non-official members. The official members include the Chairmen of the District Councils. The Chairman of important Committees, and the representative of other Departments. Out of the non-official, one half are chosen from amongst the Chairmen of Basic Democracies in the Division and the other half represent various interest. There are 87 Union Councils, 7 Union Committees, 6 Town Committees, 2 Municipal Committees, 4 Tehsil Councils and one District Council. The detail of the elected, appointed and official members is given below:—

	Elected members.	Non-official appointed.	Official	Total.
District Council	10	10	20	40
Four Tehsil Councils	93	35	40	163
Two Municipal Committees	7	4	3	14
Six Town Committees	45	22	..	67
Seven Union Committees	31	..	..	31
Eighty seven Union Councils ..	955	416	...	1,371

Further details of the Municipal and Town Committees with their constitution are given below:—

Name of Municipal/Town Committee.	Total No. of members	Elected	Nominated	Date of Constitution.
1. Muzaffargarh M. C. II Class ..	9	6	3	4-6-1960
2. Leiah M. C. II Class	7	4	3	Do.
3. Khan Garh, T. C.	9	3	6	12-3-1960
4. Alipur T. C.	13	9	4	26-2-1960
5. Jatoi T. Committee	9	6	3	1960
6. Kot Adu T. Committee ..	9	14	5	26-2-1960
7. Dara Din Panah T. C. ..	6	4	2	10-11-1959
8. Karor Town Committee ..	9	6	3	..

Chairmen.

The term of office of the members is five years. The Additional District Magistrate, Muzaflargrah and the Sub Divisional Magistrate, Leiah are the ex-officio chairmen of Muzaffargarh and Leiah Municipal Committees respectively with the exception of Town Committee D.D. Pannah, which has an appointed Chairman, the remaining five town committees have elected Chairmen.

Conditions of Municipalities Muzaffargarh Municipal Committee.

The financial condition of Muzaffargarh Municipality has improved considerobly during the last decade, whicr has enabled it to carry on various developmental activities. The following is the detail of income and expenditure of this Municipality for the year 1961-62:—

Income	Expenditure	Chief head of expenditure.
Rs. 2,54,268.00	Rs. 2,35,928.00	1. Administration 2. Octroi. 3. Education. 4. Public Health and Public Works.

Developmental activities.—

Following developmental activities were carried out by the Muzaffargarh Municipality in recent years:—

1. The Municipal Park with an estimated cost of about 20,000,00.
2. Construction of new drains worth Rs. 18,872.00.
3. Pavement of streets worth Rs. 13,842.00.
4. Completion of disposal work - of sullage water Rs. 30,000.00.

The following development plans are in progress:—

1. Extension of water supply to the entire area of the Town for which an estimate of Rs. 76,900.00 has been sanctioned.
2. Extension of drainage and the completion of disposal work Rs. 25,000.00.

Physical Activities in Various centres.—

i. *Primary Education*:—The Municipal Committee is running. 13 primary schools with a junior model school.

ii. *Vaccination*:—Cent-per-cent primary vaccination is carried.

iii. *Street light*:—The entire town has been provided with street light.

Finances:—The following is the detail of income and expenditure for the year 1961-62 of Municipal Committee Leiah:— Municipal Committee Leiah.

Income.	Expenditure.	Chief head of expenditure.
Rs. 3,87,875.00	Rs. 2,99,805.00	1. Administration. 2. Medical and Public Health. 3. Eduation and. 4. Municipal Works.

Developmental activities carried out in theyear 1961-62.

1. Construction of drains worth Rs. 4,112.00
2. Construction of metalled road worth Rs. 3,013.00
3., Construction of un-metalled road worth Rs. 9,415.00.
4. Repair of paved streets worth Rs. 33,582.00.

The total income and expenditure of the six Town committees for the year 1961-62 with the chief heads of expenditure is given below:—

Name of Town Committee.	Annual income	Expenditure	Chief heads of expenditure.
Khangarh.	.. Rs. 72,465.00	Rs. 57,567.00	1. General Administration. 2 Education. 3. Public Health.
Alipur	.. Rs. 95,056.00	Rs. 81,576.00	4. Municipal works.
Jatoi	.. Rs. 29,014.00	Rs. 26,535.00	1. General Administration 2. Medical and Public Health. 3. Watch & Ward. 4. Lightening.
Kot Adu	.. Rs. 1,67,522/-	Rs. 2,27,343/-	1. General Administration. 2. Medical & Public Health. 3. Education and 4. Municipal works.
D. D. Pannah.	Rs. 11,299.00	Rs. 6,907.00	1. General Administration. 2. Sanitation. 3. Watch & Ward and 4. Education.
Karor	.. Rs. 1,55,457/-	Rs. 1,38,774/-	1. General Administration. 2. Education 3. Public Health and 4. Municipal works.

Union Councils. The district after passing of the ordinance was divided into 87 Circles for setting up Uion Councils. These Union Councils have been declared as successors in the intrest of the previous Panchayats of this district *vide* Government Notificatios No. 1187/LFC dated 9th March, 1960.

District Cou-cil. The composition of the District Council in Muzaffargarh district has been given above. There are two categories of members; Official or appointed. The total number of appointed members is equal to the total number of the official members. The Chairmen of Town Committees/Municipal Committees and representatives of various departments have been appointed as efficial members; one half of the appointed members have been chosen from the chairmen of the Union Councils/Town Committees, and Union Committees of the District. The remaining one half of the appointed members have been chosen from the public. The Collector Muzaffargarh is the ex-officio member and Chairman of the District Council. The term of office of the members of the District Council is five years. The Council was constituted on 30th June, 1960.

An account of the salient features-income and expenditure, activities etc. of the District Council Muzaffargarh for the year 1961-62 is given below:—

Finances. Income.

1. *General Department.*

	Rs.
(*i*) Consolidated grants	37,791.00
(*ii*) Income from taxes; Local Rate, Professional Tax, Office Holder Tax and Tax of Carts	3,63,587.00
(*iii*) Fees: Registration of marriages, fairs, and shows, animal registration, Driving Licences fee	36,882.00
(*iv*) Lands, and buildings, sarais, gardens, road-side trees, demonstration farms	1,20,043.00

2. *Edudcation Department.*

Income from fee and grants from Government ..	25,78,577.00

3. *Medical Department.*

Fee and miscellaneous	1,525.00

4. *Public Health.*

Fee and grants for rural dispensaries etc.	16,551.00

5. Public Works Department.

Misce. and grant for II class roads ..	... ..	84,303.00
Suspense Account	... .	68,294.00
Total ..	Rs.	33,01,007.00
Opening balance 1-7-61		32,813.00
Grand Total ..		33,33,820.00

Expenditure.—

Including Office, T. A members, Election charges, audit fee, taxation department, Ferry department, garden, Roadside trees	Rs.	1,44,441.00
Education Department	Rs.	23,20,653.00
Medical Department	Rs.	63,766.00
Public Health Department, Rural dispensaries, Vaccination Department, Health Centre	Rs.	1,12,515.00
Veterinary Department including Veterinary Hospitals, Horses and mules breeding, poultry farm etc.	Rs.	85,408.00
Public Works Department	Rs.	58,756.00
Total ..	Rs.	32,85,756.00

Financial position for the year 1961-62.

		Rs.
Opening balance ..	Rs.	32,813.00
Income	Rs.	33,01,007.00
Total ..	Rs.	33,33,820.00
Expenditure	Rs.	32,85,539.00
Balance	Rs.	48,281.00

Public Works.

The District Council is responsible for the execution of anti-malarial activities, vaccination work, pure-food and anti-adulteration measures and sanitation of the district. It has to run all the Veterinary Hospitals and other Civil Dispensaries, Cattle Ponds, Schools etc.

Roads.

Details of roads maintained by the District Councils are given in Section *C* in Chapter VI of this volume.

Government ear-marked Rs. 22 lacs out of PL—480 fund to this district like other districts. It is considered that the entire amount shall be spent on the community Project well before the schedule.

CHAPTER VII—SECTION—E
NATION BUILDING DEPARTMENTS.

General. The Public Works Department of the District is under the charge of the Executive Engineer, Multan Provincial Division, with headquarters at Multan. There are two Provincial Sub-Divisions of this Department one at Muzaffargarh and the other at Leiah. A 3rd Sub-Division known as Construction Sub-Division has been opened recently by the Government at Muzaffargarh which generally controls the construction of buildings work etc. in the district.

The organization of P. W. D. (B&R) deals with the following branches of the works :—

A. *B & R Department.*

1. Maintenance and construction of Government buildings.

2. Maintenance and construction of Provincial metalled and unmetalled roads.

3. Execution of local bodies work in B & R only on deposit basis.

B. *Public Health Department.*

1. Execution and maintenance of sanitary and water supply of the Government buildings.

C. *Public Health Engineering Department.*

1. Execution and maintenance of sanitary and water supply of the local bodies.

D. *Electrical and Mechanical.*

Execution and maintenance of electrical installation to the Government buildings and maintenance of Government machineries.

The Railway Department has it own Engineering personnels there. The works of the Railway Department are looked after by the Inspector of Works (I.O.W.) who is stationed at Muzaffargarh

proper. His jurisdiction extends from Chenab West Bank Railway Bridge towards the Railway line upto Bhakkar-(In Mianwali district). The district boundary terminates some miles towards north of Railway Station Karor. The I.O.W. is incharge of the maintenance of the Railway buildings, bridges, sidings, and the construction of works of the same type. The Railway track throughout the district is looked after and maintained by two Public Way Inspectors (P.W.Is): one stationed at Leiah and other at Mahmood Kot. There are two Assistant P.W.Is Stationed at Deratta, and Bhakkar in the section of P.W.I. Leiah and another set of two A.P.W. Is at Kot Adu and Mazaffargarh in the jurisdiction of P.W. I Mahmood Kot. Building units of works of Railways in the district have since increased to the extent of about 30 percent. Most of the flag stations have been converted into B class-crossing stations.

Railway Bridges.

There is a Railway Bridge over the Chenab at Chenab West Bank which is open to the public throughout 24 hours. No toll is charged.

Ferry.

The ferry over the Indus at Ghazi Ghat-including the boat bridge in winter and steamer service in the summer is maintained by the Public Works Department. Motor Launches are also available for use by officers with permission. Toll is charged by the Department for crossing the boat bridge and the ferry.

General Works.

The P.W.D. Department has executed the following construction works after the partition:—

I. *Roads.*

(i) Constructed Khushab-Muzaffargarh road (Ahmadpur to Muzaffargarh 53 mlies).

(ii) Constructed Karam Dad Qureshi-D. D. Pannah road (35 miles).

(iii) Constructed Mianwali-Muzaffargarh road (81 miles) with Muzaffargarh district boundary.

(iv) Taunsa Barrage link road (6 miles).

(v)Permit-jatoi road (7½ miles).

(vi) Karor-Fatehpur road (16 miles).

(vii) Leiah-Garh Maharaja road (58 miles).

(viii) Daera Din Pannah-Munda road (19½ miles).

(ix) Munda-Rangpur road (19 miles) under construction.

II. *Buildings*:

(*a*) *Medical.*

(i) Constructed District Headquarter Hospital Muzaffargarh.

(ii) Primary Health centre, Shehr Sultan.

(iii) P. W. D. Colony at Leiah.

(iv) Tehsil level Agriculture store at Leiah.

(*b*) *Education.*

(i) Government Higher Secondary School, Muzaffargarh

(ii) Five additional class rooms in Government Higher School, Alipur.

(iii) Four additional class rooms in Government Higher School, Muzaffargarh.

(iv) Technical Workshop in Government High School, Muzaffargarh.

(v) Degree College at Muzaffargarh (Under construction).

(vi) Six rooms in Government High School for Girls Muzaffargarh.

(vii) Construction of additional 3 rooms in Government High School, Leiah.

(viii) Improvement to Government High School for Boys at Leiah—addition of 3 rooms.

III. *Food Department.*

(i) Agriculture storage Bins at Muzaffargarh and Leiah.

IV. *Local Bodies.*

(i) Roads in Muzaffargarh Twon (Municipal Committee)

(ii) Dates Curing Barn Taliri garden, Muzaffargarh.

(iii) Water Reservior in Muzaffargarh town.

(iv) Water Reservior in Alipur.

The Thal Development Authority has constructed its own Colony, Central Agricultural Machinery Workshop and a Sugar Mill at Leiah and a Water Reservoir.

Angura Sheep farm is under the process of establishment near Chaubara (Tehsil Leiah).

The Government buildings at Mazaffargarh other than those mentioned above are the District Courts, including the Treasury, Sesions's House and Police Office; the Sub-Jail, the Police Stations, the Tehsil Headquarter, and Sub-Judges' Courts, the residence of the Dupty Commissioner, Superintendent of Police and the Civil Surgeon; the Police Lines, old Civil Hospital (now converted as a portion of Government High School), the Canal Executive Engineer's residence and office; and the Dak Bungalow now under the P.W.D. There are also Tehsil buildings at the headquarters of the other Tehsils, the Sub-Judges Courts at Leiah and Alipur, the Sub-Divisional Officer's residence and Courts at Leiah and Alipur, the Public Works Department's Rest Houses at Ghazi Ghat and Wasandewali and others mentioned in Chapter VI Section C-taken over from the District Board the Government High Schools, at Leiah, Kot Adu and Alipur; Civil Hospitals at Leiah, Kot Adu, Alipur and all Thana buildings in the district. Government Buildings.

There are following five divisions of irrigation Branch of the P.W.D. Department in the district:— Irrigation. Section.

1. Executive Engineer, Canals Division, Muzaffargarh.

2. Executive Engineer, Canals Division, Kot Adu.

3. Executive Engineer, Taunsa Barrage, Kot Adu.

4. Executive Engineer, Mechanical Division, Taunsa Barrage Colony.

5. Executive Engineer, Canals Division, Leiah.

The headquarters of No. 1 is at Muzaffargarh, No. 2 and No. 3 at Kot Adu, No. 4 at Taunsa Barrage Colony and No. 5 at Leiah.

Some portion of the north eastern side of the district lies under the jurisdiction of Bhakkar Division. Sr. No. 1 to 4 mentioned above, are under the Suprientending Engineer, Muzaffargarh Canals Circle, at Multan while No. 5 is under the Superintending Engineer, Mianwali Canal Circle, at Mianwali.

The inundation system in the district has since been converted into weir control and the canals from the Chenab series are under the jurisdiction of Executive Engineer Kot Adu Division who exercises control over the Indus Canal series also. Executive Engineer, Muzaffargarh jurisdiction also extends over the Muzaffargarh canal from RD 206700 to RD 370700 (its tail). The Executive Engineer Taunsa Barrage Project deals with the various aspects of the Taunsa Barrage Project while Executive Engineer Mechanical Division Taunsa Barrage Colony is incharge of the machinery and equipments of the said barrage. Executive Engineer, Leiah and Bakkar Canal Divisions are incharge of the various perennial canals off taking from the Thal Project and irrigating the Leiah and Kot Adu Tehsils of the district.

The details of works presently being maintained by each Division have been discussed in Chapter IV captioned Irrigation.

Agriculture. The functions and the administrative set up have been discussed in Chapter III.

Animal Husbandary. The achievements with administrative set up have been discussed in Chapter III.

Cooperation. The history, the growth, the financial position and physical achievements have been mentioned in Chapter III.

CHAPTER VII—SECTION F
EDUCATION AND LITERACY.

Education

Total population recorded during the year 1961 was 9,89,378 out of which 5,30,512 were males and 4,59,366 females. These figures may be favourably compared with the recorded figures of the year 1951 when the total male and female population was 3,08,305 and 2,59,873. The per-centage of the literacy in the district is 5.10 among males and 0.34% among females. Total number of literates among males were 15,956 and among females 939. The number of literates rose to 27,913 and 8.231 respectively in the year 1947. The number of students attending primary schools at the time of partition was 9,609. The number of literates recorded in the year 1961 was 80,342 out of which 71,121 were males and 9,221 females. The per centage of literacy also rose to 13.41 and 2.01 amongst males and females as compared with 5.10 and 0.34% in the year 1951 respectively. The progress of literacy has been very slow during the last two/three decades firstly because the population was so scattered on wells that it was difficult to provide schools which in turn diminished the scope of education except amongst the rich who were settled in the big cities and towns, and secondly because villages as a whole who were in majority were averse to education. The same tendency was operative as far as the female population was concerned. It will be seen that at the time of partition there were 86 girls schools which figure rose to 152 in the year 1961. These figures however does not give correct indication of degree of aversion to female education because at the time of partition majority of females who were educated were Hindu girls who have since migrated. Amongst Muslims the education was very little and basing our assessment on this factor it can be said that aversion to female education is lessening.

The educational levels of the literate sections of the population in the year 1961 is further analysed below:—

	Total.	Male.	Famale.
Postage Graduate ..	210	200	10
Graduate ...	283	261	22
Under Graduate. ...	682	609	73
Matric. ..	4812	4586	226
Middle ..	12659	11650	1009
Primary. ..	27245	24691	2554
Below Primary ..	26509	23356	3153

Number of persons holding professional or technical Certificates. Diplomas and Degrees are as follows:—

	Total	Male.	Female.
.. .. ..	2097	1922	175
Medicine	293	281	12
Engineering	252	251	1
Agriculture	187	171	16
Commerce	27	27	..
Law	99	99	..
Other professions	93	93	..

Schools and other Institutions have registered a continuous increase since partition. The rise was gradual up to the year 1959. Since 1960 an average number of 60 primary schools for boys and 30 for girls have been opened every year. With the result that since 1948 the number of Primary Schools rose from 282 to 614 and those for girls 58 to 82 in the district. The enrolment of the recognised institutions in the district has risen from 27301 to 44577 since 1948.

The residential accommodation for the teachers of the primary school is being provided by Local Union Councils or the Union Committees. With economic stability, people in the rural areas have shown signs of awakening and as a result of which there has been a steady progress. People in general are still averse to female education yet marked progress has been recorded in recent years.

EDUCATIONAL INSTITUTIONS.

The following table shows the number of institutions in the District:—

Colleges and Schools	Male.						Female					
	Govt.	Distt. Board	M.C.	Aided	Un-aided.	Total	Govt.	Distt. Board	M.C.	Aid-ed	Unaid-ed.	Total.
1 Degree ..	1	..	..	..	..	1	..	..	..	..	..	..
2 Inter-College ..	2	..	..	..	..	2	..	..	..	..	.	4
3 High Schools ..	5	4	1		..	10	4	..	..	..	..	–
4 Middle Schools English ..	..	22	..	..	..	22	..	6	..	..	..	6
5 Middle Schools Vernacular ..	..	25	..	..	..	25	..	..	..	..	..	..
6 Primary. ..	...	494	14	...	...	508	..	113	..	...		113
Official Institutes												
Normal and training ..	1	..	..	..	..	1	1	..	..	..	..	1
2 Poly Tech. ..	1	..	..	..	..	1	..	..	..	..	..	..

Besides, the interest shown by the Government, the part played by Anjuman-e-Islamia Muzagargarh in popularising education amongst Muslim is commandable. The stipends awarded from Sardar Bahadur Kauri Khan funds and the recruitment of Muslims from Agriculture Class in training institution in pre-independence days directly influenced school attendance which rose immensely.

After the enactment of compulsory education in the year 1919 the scheme was introduced in 5 urban and 88 villages. The attendance in the 1st decade rose 50% everywhere and to 90% at some places.

Steps to promote Literacy.

Now the compulsory education has been inrtdouced through out the Districts. The Chairmen of the Union Councils have been empowered to ensure attendance of school going children. It is hoped that this step shall increase maximum expansion of literacy in rural areas.

The Government promulgated Primary Education Ordinance in 1962. The District Education Committee under the presidentship of the Deputy Commissioner in all the Districts throughout West Pakistan have been constituted in order to give flip to the primary education and also in order to impart security to the staff employed by the District Councils. The demand for primary institutions has increased. The buildings are mostly being provided by the people.

At the time of partition the percentage of educated Muslims was hardly 7.2%. In order to improve literacy percentage, adult centres were established in the rural areas in the year 1949. These centres continued catering to the needs of illiterate grown up labourers upto the year 1958. More or less about 1500 adults passed the literacy test te these centres. Libararies had been set up in the village priamry and middle schools. These libararies contain books and journals dealing with matters of interest to rural population generally. At first the teachers worked honourarily; but, in order to place these centres on a satisfactory footing, a regular scale of allowance had been given by Local Bodies out of funds provided by Government for this purpose.

Education of Adults.

The teaching of agriculture was no doubt begun in the beginning of this century but this subject has been in the hands of senior vernacular teachers trained at the Agricultural College at Layallpur.

Gardenning Agriculture and Technical Education.

About 12 matric S. V's of this District have undergone a short term course of 3 months at Agricultural College at Lyallpur in the

year 1961-62. They are now working in the schools to which Farms have been attached. In these farms practical training in Agriculture is imparted to the boys.

In addition to this about 40 senior vernacular teachers of this District have been trained in Technical institution at Lyallpur and Bahawalpur last year. They will teach 'Industrial Art' to be introduced in Middle Schools of this District with effect from the ensuing academic year.

System of Education

With the introduction of new scientific teaching methods which encourage the children to learn through play and self expression, the old method of teaching is being replaced by degrees. Moreover, instruction is no longer limited to the prescribed scheme of studies but its scope has been widened by various activities such as the Boys scout movement, play-for-all arrangements.

In order to acquaint the village teachers with the new and advanced methods of teaching, a refreshers course is held occasionally at each Tehsil Headquarters. During these courses a comprehensive scheme of work and play is gone through. Various items of educational importance are discussed and lectures are given on the value of co-operation, discipline, personal and school Hygiene, etc.

Boy Scout Movement

In the District there are 2500 scouts and 42070 cubs and there is hardly a middle school without a partrol or a troop of boy scouts at this time. Scouts attend the courses every year at Murree Hills to refresh their techniques.

Play for all Arrangement

Physical training has received increased attention in the schools, The play-for-all arrangements have now almost completely replaced the old system and it has become usual to see the whole school turn out for play under the supervision of teachers. Tournaments and games are played to encourage the boys to join the games These arrangements have very successfully prpovided the boys with the opportunities to avail of their leisure to the best advantage.

Supply of Teachers

The difficulties confronted by this District with regard to the availability of trained teachers just after the partition cannot be enumerated. In order to fill up the gap old middle pass youngmen were trained at the two training institutions one at Muzaffargarh and other attached to Government High School, Kot Adu. These middle pass youths were also sent for training to the Normal School, Kamalia and Gakhar. It took at least 7 years to equip schools with trained and qualified teachers. During the last two years due to the speady expansion of primary Education, some

untrained Matriculates have also been employed,. At present this District has 2059 teachers of whom 1793 are trained and 266 untrained.

Control and Administration

With the exception of a few Government High Schools for boys and girls the recognised educational institutions of all kinds in this District had been maintained and administered by the Local Bodies, that is, District Council, Municipal Committees and Town Committees. The control of the Primary Education has been taken over by the Government w.e.f. 1st July, 1962. Consequent upon this change over, all the institutions in the District except 6 High Schools which are under the control of District Council Muzaffargarh, one High School maintained by Municipal Committees, Leiah have come under the control of a District Primary Education Committee set up by the Government. This Committee has been constituted with a view to exploring the possibilities of expanding and spreading education in the District. The administration and the control of Educational Institution upto 8th class which was previously in the hand of the Chairman, District Council has now been entrusted to the District Education Committees by the Government. The District Council High Schools, are under the control of the Divisional Inspector of Schools, Multan (who obtain concurrence of the Chairman, District Council in almost all the matters).

Scale of Salaries.

Following is the scale of salaries paid to the teachers of different categories at this time:—

1.	B.A. untrained	Rs. 90/- fixed.*
2.	F.A. untrained	Rs. 70/- fixed
3.	Matric untrained	Rs. 50/- fixed
4.	B.A. B.T.	Rs. 110-7-180.
5.	F.A.C.T.	Rs. 75-5-120.
6.	Matric J.A.V.	Rs. 75/-5-120.
7.	S.V. Teachers	Rs. 60-4-100/105-7-140.
8.	H.P.M.A.O.T.	Rs. 60/- fixed.
9.	J.V. Teacher	Rs. 50-3-80/4/100
10.	Matric P.T.I. (Trained)	Rs. 60-4-100/105-7-140.
11.	Military retired P.T.I.	Rs. 35/- fixed

*since revised under consolidated pay scales.

Girl Education.

In the matter of girls' education the District still stands back ward as compared to other advanced districts of the country. It is however an encouraging sign that during the last three or four years there has been an increase of 65 primary schools, 3 middle schools in the District. Main problem in the progress of female is the scarcity of female teachers. Most of women teachers are not willing to leave their homes. To meet the demand for trained teachers the training has since been brought closer to the homes of the students by opening regular J. V. Class in Government Girls High School, Muzaffargarh and attaching J. V. Class to Government High School, Leiah,. To encourage women to undergo training, Middle pass girls are also admitted into the training classes and a stipend of Rs. 15.00 p.m. every year is awarded to each trainee.

Government has undertaken to pay to the teachers the new scale of salaries announced shortly with retrospective effect *i.e.* from 1st December, 1962. Meanwhile teachers have been paid interim relief at the rate of 10% of their actual salaries *w.e.f.* 1st July, 1962.

Education upto the Primary stage *i.e.* 5th class is given free English has been made a compulsory subject in all the middle classes since 1960. Consequently the old rates of fees levied in the Vernacular Middle Schools of the Board have been discontinued and the fees are levied at the following rates in all the Anglo Middle, High Schools of the District under article VI Chapter IV page 26 of the Punjab Education Code:—

	Class 6th	7th	8th	9th	10th.
Grade I.	3.00	4.00	4.00	8.00	8.0
Grade II.	1.50	2.00	2.00	4.00	4.0

The children of agriculturists, village artisans and Kammis (mucens) in this District enjoy a remission of half the fees.

Scholarship

With a view to provide financial aid to the needy pupils the following scholarships are awarded:—

Kinds of scholarship.	Number of scholar.	Amount.	Source from which paid.
1. Residential	7	20/- p.m. and 50/- p.a.	Provincial.
2. Non-residential ..	15	5/- and 50/-	Provincial.
3. Open	28	4/- p.m.	Out of Distt. Council Fund.
4. Military scholarships ..	2	4/- p.m. ..	Do.
5. Despressed class ..	1	4/- p.m.	Do.
6. S. Kaura Khan ..	5	4/- p.m.	Do.

In addition to these, stipends of the value of about Rs. 14,000/- are awarded every year out of the income of the late Khan Bahadur Sardar Kaura Khan's estate left to the District now District Council Muzaffargarh, to deserving and needy scholars in secondary schools, colleges and also in special cases in professional colleges.

Boarding Houses.

There are boarding houses at all the High Schools and the Middle Schools of this District. The increase in the number of boarders is proportionate to the number of scholars in the schools.

Industrial Education.

There is no Government Industrial School in the District. Importance has however been given to the introduction of the technical subjects for which two workshops have been recently opened, one at Government High School, Muzaffargarh and the other in District Council High School, Kot Sultan. A Poly Technical Institute is being established at Leiah.

Expenditure on Education.

In view of the weak financial position of the District Council Government gives a grant equal to the 80% of the total expenditure incurred on primary education on the institutions from 1 to VIII classes. The rest of the 20% is paid by the District Council out of its own funds to meet the expenditure.

Statistics.

Tables 50,51 and 52 of Volume B give a detail further figures from 1947-1961.

Reading rooms and Public Libraries.

There are two reading rooms attached to Public Libraries at Muzaffargarh and Kot Adu each. These libraries and reading rooms are maintained by the Municipal Committee Muzaffargarh and Town Committee at Kot Adu respectively.

Local News Papers and Periodicals.

There is no local daily news paper published in the District However one weekly, known as "Bisharat" and one fortnightly "Alhayat" are published in the District. The circulation of 'Bisharat' is estimated at 700 copies per week and that of Althayat about 500 copies fortnightly.

CHAPTER VII—SECTION G—HEALTH

General

The extereme variation in the temperature, the excessive humidity from the month of July to the month of October, the bad drainage system due to which water accummulates in burrow-pits, on water logged lands, and extreme unhygienic condition of the district can hardly promote good health. The incidence of Malaria during summer, skin and eye diseases, enlarged spleen, Bronchitis, Pneumonia and ulcers sap the energies of the people. The malaria fever decreases the resistance, the summer being followed by extreme winter causes Bronchitis and Pneumonio from November to April, thereby affecting the health of the people adversely. They as such can not effectively work on their farms and thus productivity of the land is also effected. The vicious circle of malarial fever, Pneumonia and poverty is established and the poor farmers know not how to get rid of it. The health of the people in Thal area is generally better than the rest of the district. In the year 1960-61 total number of persons who were suffering in the Muzaffargarh district was 5,78,328 out of the population of 9,79,878. This shows that the district is not attractive from health point of view. The number of patients in the Muzaffargarh district in the year 1950 were 3,49,349 and in 10 years the number has almost doubled inspite of the medical services rendered by the Health Department.

Health Services.

The Department of Health Services in this district is under the charge of the District Health Officer (D.H.O.), who is responsible for the over all administration in his jurisdiction. He is generally a Medical Graduate with additional Public Health qualifications. The D.H.O. is assisted by an Assistant District Health Officer, who also possesses the qualifications of a medical graduate with a Diploma in Public Health Service.

Hospitals and Dispensaries

The Hospitals and dispensaries are run by Medical Officers, Assistant Medical Officers and a few by Dispensars. There are four Medical Officers in the District incharge of various Hospitals, who are all medical graduates. The Assistant Medical Officers are mostly licentiates in medicines and surgery and are incharge of civil and rural dispensaries in the district. Some of the rural dispensaries are still manned by the Dispensaries due to paucity of qualified Doctors.

The following statement shows the hospitals and the Dispensaries in the district under the control of the D.H.O., Muzaffargarh.

S.No.	Name of Hospital or Dispensary	By whom maintained	Bed accommodation. Male.	Femal	Incharge of Hospital or Dispensary
1	Civil Hospital, Leiah ..	Government	8	4	Medical Officer.
2	Civil Hospital, Alipur ..	Do.	8	4	Do.
3	Civil Dispensary Kot, Sultan	Do.	5	3	Do.
4	H.H.C. Shehr Sultan ..	Do.	2	2	A.M.O.
5	Civil Hospital ,Kot Adu.	Distt. Council	8	4	A.M.O.
6	Civil Dispensary Sanawan. ..	Do.	2	1	A.M.O.
7	Civil Dispensary, Rang'pur	Do.	2	1	A.M.O.
8	Civil Dispensar Jatoi ..	Do.	2	..	A.M.O.
9	Civil Dispensary Seetpur...	Do. ..	2	..	A.M.O.
10	Town Committee Dispensary, Karor	Town Committee.	2	..	A.M.O.
11	Town Committee Dispensary, Khangarh	Do.	2	..	A.M.O.
12	Canal Dispensary, Taunsa Barrage	Irrigation.	2	..	A.M.O.
13	Canal Dispensary, Panjnad ..	Do.	..	..	A.M.O.
14	Canal Dispensary, Tail Munda ..	Do.	..	..	A.M.O.
15	Rural Dispensary, Basira ..	Distt Council	2	..	A.M.O.
16	Rural Dispensary, Kinjhar ..	Do.	2	..	A.M.O.
17	Rural Dispensary, Rehillanwali ..	Do.	2	..	A.M.O.
18	Rural Dispensary, Gujrat	Do.	2	..	A.M.O.
19	Rural Dispensary, D.D.Pannah	Do.	2	..	A.M.O.
20	Rural Dispensary, Langer Sarai	Do.	2	..	Dispensar.
21	Rural Dispensary, Choubara	Do.	2	..	Do.
22	Rural Dispensary, Binda Ishaq	Do.	2	..	Do.
23	Rural Dispensary, Khairpur Sadat	Do.	2	..	A.M.O.

S. No.	Name of Hospital or Dispensary	By whom maintained	Bed accommodation Male.	Femal	Incharge of Hospital or Dispensary
24	Rural Dispensary .. Muradpur Janoobi.	.. Do. .. Co-operative Department.	..	..	Dispensary
25	Co-operative Sub-sidized Dispensary Basti Allah Bakhsh.	Do.	..	..	Do.

Note.—Three Sub-Health Centres at Kalar Wali, Hamzawali, and Damerwali are attached with the Primary Health Centre, Shehr Sultan.

Besides the above, Thal Development Authority has established the following Hospitals and Rural Dispensaries for the treatment of T.D.A. staff as well as for the settlers in the interior of Thal area:—

26	T.D.A. Hospital Leiah ..	6 T.D.A.	..	Resident Medical Officer.
27	Chak No. 98/ML Karer Dispensary	Do.	..	Dispensar.
28	Chak No. 86/ML Karor Dispensary	Do.	..	Dispensar.
29	Ladhana Dispensary ..	Do.	..	Do.
30	Tail Indus Farm Dispensary ..	Do.	..	Do.
31	Patal Munda Dispensary ..	Do.	..	Do.
32	Chak No. 397 TDA. Dispensary 5181. T.DA.. 170 TDA.	.. Do.	..	Do.

Besides Hospitals and Dispensaries mentioned in the above statement there are the following three Hospitals/Dispensaries at the District Headquarter Muzaffargarh:—

(i) District Headquarters Hospital, Muzaffargarh.

(ii) Police Hospital, Muzaffargarh.

(iii) Jail Dispensary Muzaffargarh.

All the above mentioned three Hospitals are maintained by the Government and are under the administrative control of the Medical Superintendent. The District Headquarters Hospital, Muzaffargarh was built under the social uplift scheme and started functioning with effect from 26th May, 1957, having bed strength of 125 patients. Medical facilities are afforded in all diseases of general type in this Hospital X-Ray plant has been installed in it and is being used for X-Ray and screening purposes. Daily average of out-door and indoor patients of this Hospital, is 218-26 and 89-26 respectively.

The following staff is working in this Hospital at present:—

1.	Medical Superintendent	1
2.	Medical Officers	2
3.	Woman Medical Officer	1
4.	Anaesthatist	1
5.	Pathologist	1
6.	Staff Nurses	6
7.	Nurses Dai	1
8.	Trained Dai	2
9.	Nursing Orderly	1
10.	Male Nurse	2
11.	Dispensers (Male)	3
12.	Dispenser (Female)	1
13.	Operation Th. Assistant	1
14.	X-Ray Assistant	1
15.	Laboratory Assistant	1

16. Laboratory Attendant		1
17. Senior Clerk		1
18. Junior Clerks ...	1	2
19. Store Keeper ..	1	1
20. Peons		2
21. Menials staff , ...		38

As already mentioned above there are three Tehsil Headquarters Civil Hospitals one each at Leiah, Kot Adu and Alipur. The Civil Hospital, Leiah was provincialised in 1929.

This Hospital is run by the District Council and needs to be provincialised and renovated Civil Hospital Alipur was built a new in 1940 and is satisfactorily meeting the demand of the public of the area.

During the past few years the philosphy of medical care has undergone a drastic change. Each rural health centre consists of a Primary Health Centre and 3 Sub-Health Centres attached with the Primary Health Centre. They cater to the needs of 30,000 to 50,000 people. These centres have adequate staff, both curative and preventive, adequate funds and medicines and conveyance for touring in the rural areas. At present, there is only one Rural Health Centre at Shehr Sultan functioning in full swing. Second Rural Health Centre at Jatoi is hoped to be constructed during the current financial year.

Civil Dispensaries

All the civil dispensaries (except one at Kot Sultan) are maintained by the District Council but are under the supervision of the District Health Officer. The present Civil Dispensary at Jatoi appears to be memorial to the late K. B. Sardar Kaura Khan who left to the District Council a share of his estate.

Rurlal Dispensaries.

There are 10 rural dispensaries functioning in the District. They are also maintained by the District Council but the Government gives a grant of Rs. 2,500/- per annum to each of these dispensaries.

Canal Dispensaries.

In addition to these hospitals and dispensaries there are 3 canal dispensaries in the District at Panjand, Taunsa Barrage and

Tail Munda. They are financed by the Irrigation Department and mainly cater to the needs of canal colonies but some are open to public also.

The following table gives the statistics of patients treated, operations performed etc. during the year 1960-61:— Statistics of Patients Operations.

Sr. No.	Name of institution	Out Patients.	Surg. Operation	Selected operation.
1	Civil Hospital, Leiah	71892	1324	...
2	Civil Hopsital, Alipur	65700	1169	...
3	Civil Dispensary, Kot Sultan	27403	119	..
4	Civil Dispensary, Shehr Sultan	57112	357	..
5	Civil Hospital, Kot Adu	68222	68	...
6	Civil Dispensary, Rangpur	9436	141	
7	Civil Dispensary, Sanawan	15707	425	...
8	Civil Dispensary, Jatoi	26303	92	...
9	Civil Dispensary, Seetpur	12916	159	...
10	Civil Dispensary, Town Committee, Khan garh	24208	171	...
11	Civil Dispensary, Town Committee, Karor	19406	147	...
12	Canal Dispensary, Tausan Barrage ..	9002	147	...
13	Canal Dispensary, Punjnad	16112	112	...
14	Canal Dispensary, Tail Munda ...	3919	88	...
15	Rural Dispensary, Basira	23042	145	...
16	Rural Dispensary, Kinjhir	32889	234	
17	Rural Dispensary, Rohillanwali ...	13202	145	...
18	Do. Dispensary, Gujrat	15743	123	
19	Do. Dispensary, D.D. Panah ...	12180	125	...
20	Do. Dispensary, Langar Sari ...	15257	139	...
21	Do. Dispensary, Chaubara.. ...	9385	171	...
22	Do. Dispensary, Binda Ishaq ..	12391	135	...
23	Do. Dispensary, Khairpur Sadat ...	13170	147	...
24	Do. Dispensary, Muradpur Janubi	10849	51	...

Diseases.

Form the above data it is clear that Malaria, tuber culosis, and Eye-diseases are the main diseases of this district. Out of these malaria is the most prevelant disease. Its incidence co-incides with the harvesting and sowing season of main crops. This greatly affects the agricultural out-put, and consequently effects the economy of the people.

Tuberculosis has shown an upward trend during the past few years. This is mainly due to poverty, under nourishment, and over crowding.

Out of the eye diseases, trochoma, and cataract are by far very common. Venereal diseases are not very common in this district.

Insanity.

Insanity is not common and cases are some times referred to Punjab Mental Hospital. Lahore. The relief afforded by hospitals and dispensaries has been increasingly appreciated by the public and the work done has been found to be more than double during recent years. The proportion of unqualified to qualified practitioners is very high in the district.

Preventive work.

The preventive work includes vaccination against small-pox, T.B. and Cholera inoculations, Anti-Plague measures, improvement of town and Rural sanitation, control and prevention of communicable diseases, meternal and child health care, Family planning and school health services.

Vaccination.

Under the West Pakistan Vaccination Ordinance 1958 (which has replaced Vaccination Act of 1880) Primary vaccination has been made compulsory. Revaccination is optional but it also becomes compulsory in case of epidemic. In order to prevent the occurrence of small-pox it is essential to vaccinate at least 80% of the population.

The vaccination in this district is carried out under the direct supervision of the District Health Officer. He is assisted by one Superintendent Vaccination, Two Assistant Superintendent Vaccination and 16 Vaccinators. But in case of emergency, Sanitary staff is also utilised to do this work. The period of vaccination starts from 15th October, and ends on 10th April. During rest of the period vaccinators art required to check birth and death registers of chaukidars and prepare a list of persons to be vaccinated during the next season. Both rotatory and Lancet methods are employed for Vaccination. Town Committees have their own arrangements.

Vaccination operations cost Rs. 42,226/- per annum. Out of this Rs. 9,000/- are spent on the purchase of vaccine and the rest on pay and contingencies etc. During last year 35,259 primary and 93,457 revaccination were carried out by the district staff. These figures do not include the number of vaccinations done by the staff of Town Committees.

The attitude of the public towards vaccination is on the whole very favourable.

Cholera inocculations are not carried out as a routine measure, but only in case of threatened epidemic. T.A.B. inocculations are, however, carried out on voluntary basis.

Derating measures are the responsibility of sanitation staff

Sanitation.

Improvement of town sanitation is mainly the responsibility of the Town Committees who have their own Sanitary Inspectors etc. But rural sanitation is the responsibility of the District Health Officer and his sanitary staff. Sanitary Laws and Bye-Laws have been framed and are being enforced.

Epidemics Control.

There is no special epidemic staff for this purpose in this distric. Last year only 4 cases of small pox were reported in the district, inspite of the famous Karachi epidemic. All these cases were, probably, imported ones.

Maternal & Child Health Centre.

Mothers and children constitute about 75% of the total population. Hence they need special care. A beginning has been made in this connection by opening 3 Maternity and Child Health Centres. Out of them 2 are maintained by the Government and the third one by the Red Cross. Each of these Health Centres is staffed by a Lady Health Visitor, a Dai and a peon. Besides giving advice and treatment to expectant mothers, conducting deliveries and holding baby clinics, the Lady Health Visitors, train indigenous dais also. These centres are proving popular among the community. But this number of Health Centres is inadequate to the needs of the people. More such Centres are required.

Family Planning

Rapid overgrowth of population of the country is causing great concern both to the Government and the intelligensia of the country. During the last decade population increased by 23.8% This means an addition of approximately 3.5 persons per minute, round the clock, to our population. In accordance with the policy of the Government family planning measures are being advocated to the masses through Family Planning clinics. Family Planning measures include birth control, family limitation, family spacing, marriage guidance, sex education, etc.

At present 14 family planning clinics are functioning in the Muzaffargarh District. People so far are not coming forward in good numbers.

School health Services.

It is a new subject and has been very recently introduced in some schools. This is due to the initiative of the Assistant District Health Officer. Two High Schools in Alipur Tehsil have started this programme. They have engaged part-time School Medical Officers. Efforts are being made to start this useful programme in other schools also.

Food Sanitation.

This consists mainly in preventing food adulteration under the West Pakistan Pure Food Ordinance, 1960. With the abolition of the posts of whole time Food Inspectors, District Health Officer is now the only Sampling ffiOcer in the district. Last year about 700 food samples were seized and sent for analysis to the Public Analyst, Lahore.

Drug Licencing.

District Health Officer is the licence issuing authority under the provision of the Drugs Act, 1940. He is also ex-officio Drug Inspector in his district. Last Year 101 new licenses were issued to various druggists, and chemists in the district.

Mortuaries.

There are mortuaries at Muzaffargarh, Alipur and Leiah, and post-mortem work is done by the Medical Superintendent or Medical Officers incharge of these local Hospitals-who are Assistant Surgeons.

Budget.

The Health programme in the district are financed by the Government, District Council and Town Committee. The Government maintains Civil Hospitals at Alipur and Leiah and partly that of Kot Adu, a Civil Dispensary at Kot Sultan and a Rural Health Centre, Shehr Sultan. Rest of the dispensaries are maintained by the District Council and Town Committees. Some of which are aided by the Government also.

On the preventive side, the district field staff and Maternity and Child Health Centres are financed by the Government and rest by the District Council.

Budgetary figures for the year, 1962-63 are as follows:—

Head.	2—District Health Officers.
Pay of Officers	Rs. 12,080

		Rs.
Pay of Establishment	..	4,600/-
Travelling Allowance	..	4,000/-
Other Allowances	..	5,060/-
Contingencies	..	4,830/-

Head .. B-12, Other Hospital and Dispensaries.

Pay of Officers	..	7,660/-
Pay of Establishment	..	19,300/-
Travelling Allowance	..	2,000/-
Other Allowances	..	15,460/-
Contingencies including medicines, equipments, diet and pay of menials	..	6,200/-

Head: .. G-2 District Field staff (Sanitary Inspectors Sanitary Patrol, Sanitary Supervisors).

58,000/-

Head:—I-Health Centres. Rs. 7,450/-

(This is for pay and allowances of Lady Health Visitors, Dais, Peons, Medicines and equipments for 2 Health Centres).

Head:A-6 Rural Health Centres Rs. 15,720/- for three months only.

CHAPTER VII—SECTION—H

LABOUR WELFARE DEPARTMENT

Since the year 1952 a full fledged Labour Welfare Department has been set up to look after Industrial worker's problems. The main functions are:—

1. To enforce labour law;
2. To prevent disputes between workers and management of industrial establishment; and
3. To promote general welfare of the working class.

There is one Labour Inspector to watch the implementations of all the labour laws in the district. He is under the Labour Officer who in turn works under the Deputy Director Labour Welfare. Both these Officers are having their headquarters at Multan.

Muzaffargarh is not much of an industrial district. There were four Textile Factories, namely, Amin Textile Mills, Muzaffargarh, Afaq Hosiery, Muzaffargarh, Karkhana of Mistri Aman Ullah, Khangarh; Pakistani Khadian at Kot Adu, which remained closed during the last year. There are two P.W.D. Workshops at Muzaffargarh and Taunsa Barrage, which are run by the Government. A third workshop known as A.M.O./T.D.A. is set up at Leiah. One Sugar Mill is running at Leiah while a P.W.D. irrigation Power House is in operation at Taunsa Barrage. The number of skilled and unskilled labourers employed in the various workshops mentioned above are given below (figures supplied by the Assistant Director, Labour Welfare, Multan):—

S. No.	Name of Factory.	Nature of manufacturing process.	Labour.	
			Skilled.	Unskilled
1.	Leiah Sugar Mills ..	Sugar production ..	323	624
2.	P.W.D. Workshop M. Garh	Repair Workshop ..	3	3
3.	P.W.D. Irrigation. Workshop Taunsa Barrage.	Tractor repair ..	7	8
4.	AMO/TDA Workshop, Leiah.	Repair work ..	105	60
5.	P.W.D. Irrigation Power House at M. Garh. ..	To supply Electric and to move workshop machinery for repair of tractors.	7	66

The unskilled labour generally belongs to the suburban areas where such foctories or workshops are located. There are seasonal factories for example ginning factories where unskilled female labour is employed from the neighbouring districts like D. G. Khan. The wages of such female labourer in the year 1961-62 was Rs. 1.50 per day while that of the male workers was Rs. 2 to Rs. 2.50. The wages of skilled labour is fixed according to his qualification and the nature of work to which he is employed. Generally daily wages of a skilled labour ranges between Rs. 5 to Rs. 7 per day.

CHAPTER VII—SECTION I

ADMINISTRATION OF WAQAF PROPERTY

General.

The West Pakistan Waqaf Property Ordinance was promulgated by the Government of West Pakistan in the year 1959. The control and management of such properties vest in the Manager of Waqaf Properties.

The Auqaf properties in the district are managed by one Manager with one Junior Clerk. The waqaf department has so far taken over the management of nine auqaf institutions. These include one Imam Bara, Juma Masjid Sardar Bahadur Khan (Alipur), Shrine of Hazrat Daud Jahanian *alias* 'Pir Jahanian' Shrine of Syed Abdul Wahab, Bukhari Din Panah, Shrine of Hazrat Lal Isan Karor (Tehsil Leiah), Shrine of Hazrat Pir Inayat Shah, Tehsil Leiah Shrine of Hazrat Pir Muhammad Rajan Sahib, and two agricultural plots. Particulars of each such property, as recorded by the Manager Auqaf Department, Muzaffargarh are reproduced below:—

Anjumane-Hussainia

No. I Waqai property named Anjuman-e-Hussainia, (Imambara), Muzaffargarh.

Location	..	Muzaffargarh Disrict.
No. and date of Notification:—		3 (125) Auqaf-60, dated 5-8-60.
Property taken over (a) Agricultural land	—	I. 3 kanals 12 marlas in the Evacuee estate of Lutkaran of M-Garh tahsil.
		II. 204 kanals and 19 marlas in village Thatta Sialan, M-Garh Tahsil.
		III. 7/240 share of 8 kanals & 19 marlas in Bagwa Choolistan, M-Garh tahsil.
		IV. 153/400 share of 113 kanals & 9 marlas village Sheikh Musa Khalifa, M-Garh, Tehsil
		V. 72 kanals in village Rampur of Alipur Tehsil
		VI. 214 kanals 15 marlas in village Umar Budh Tahsil, M-Garh, subsequently dedicated by Malik Habib, a member of A. H. Budh.
Number of house	..	4. small rooms, given on rent out of the Imambara building situated in Mohallah Sheikhupura of Muzaffargarh town.
(e) No. of shops	Two ..	Do.

Income and Expenditure.

Name of year.	Income.	Expenditure.	Credit balance on 31-12 62
1961-62	3,377.28	2,245.18	4,195.32

5. *The purposes of waqaf according to the waqaf deed or usage.*—There was no Imambara at the district headquarter prior to 1946. The Shia Muslims raised funds, constructed the Imambara and established the institution, named 'Anjuman-i-Hussainia', in 1948. The institution framed its Bye-laws in 1953. The objects of the institution are, religious, social and charitable, as contained in Section 3 and 4 of the Dastural-amal.

6. *The details of ceremonies and rites.*—The following rites and functions are being performed at Imambara Hussainia, Muzaffargarh, according to the Administration Scheme:—

S. No.	Date and Month.		Details.
1.	Muharram	..	Majalis-i-Aza from 1st 10th and on 25th Muharram Shahadat Hazrat Ali Abid the son of Hazrat Imam Hussain).
2.	Saffar, 20	..	Chehlum.
3.	Rabi-ul-Awal 12	..	Eid Milad-un-Nabi.
4.	Rajab-13	..	Birth Day of Hazarat Ali.
5.	Shaaban, 3	..	'Hussain Day i.e. Birth day of Hazrat Imam Hussain.
9.	Ramzan-ul Mubarak, 12		Shahadat Hazrat Ali.
7.	Zilhaj ,9.	..	Shahadat Hazrat Muslim.
8.	Zilhaj ,18	..	Eid-i-Ghadeer.
9.	Zilhaj, 24	..	Eid-i-Mobainilla.

7. *S nctioned trengt.h of staff*.-

S. No.	Name of post	Monthly pay including allowances.	Remarks.
1.	Peshimam-cum-Khatib	76/-p.m.	
2.	Sweeper one (part time)	4/-p.m.	

8. *Appointment of Religious purposes Committee.*—A committee has been formed by the Administrator of Auqaf, Central Zone, Lahore, for assisting the Department.

The Manager, Waqaf Properties, Muzaffargarh is member and Secretary of the Religions Purposes Committee.

9. *Scheme to be implemented out of income of the Waqaf Property.*—The institution has its Branches at Rohillanwali, Thatta Sialan, and Budh.

2. Waqaf Property named Jama Masjid Sardar Bahadur Khan (Alipur) in Muzaffargarh District:— Sardar Bahadur Khan Mosque.

1. Location: Alipur Tehsil of Muzaffargarh District.

2. No and date of Notification, 3(21) Auqaf Co. dated 23rd July 1960.

3. Property taken over.

(*a*) Agricultural land.	A garden measuring 6 kanals and 6 marlas.
(*b*) Number of Houses.	Four.
(*e*) Number of shops	Three.

4. *Income and Expenditure.*

Name of year.	Income.	Expenditure.	Credit balance on 31-12-62
1961-62	5,813.82	..	5,513.65

5. *The purpose of Waqaf according to the Waqaf deed or usage.*—The mosque in question was constructed by Sardar Bahadur Khan, the then S.D.O., Alipur, more than 35 years ago. The land attached to it was dedicated by the residents of the locality for its development. The purpose is religious worship.

6. *The details of ceremonies and rites.*—A school in Deniat is functioning. The Masjid is used for 'Juma prayer'.

7. *Sanctioned strength of staff*:—

(1) Khateeb-cum-Imam ... Rs. 50/- p.m.

(2) Sweeper ... Rs. 5/- p.m.

No. 3. Waqf Property named, shrine of Hazrat Daud Jahanian formed by the Administrator of Auqaf, Central Zone, Lahore.

9. *Schemes in hand or to be implemented out of the income of the Waqaf property.*—The mosque and building is to be repaired.

Hazrat Daud Jahanian.

No. 3 Waqf Property named, shrine of Hazrat Daud Jhanian *alias* Pir Jahanian, in Muzaffargarh District.

1. Locality. Village Rampur, Tehsil Muzaffagarh.

2. No. & date of Notification. 3(528) Waqaf-60, dated 22-4-1961.

3. Property taken over .. No cultivated land is attached with the shrine.

(*a*) Agricutural land .. The shrine is situated in the Abadi Deh.

(*b*) Number of Houses .. One newly constructed guest room.

(*c*) Number of shops .. Nine.

4. *Income and expenditure* :—

Name of year.	Income.	Expenditure.	Credite balance on 31-12-1962.
1961-62 ..	3,271 72	..	2,343.42

5. *The Purpose of Waqf according to the Waqf, deed or usage.*—No deed or instrument creating the Waqf is available. It is a waqf by public usage, established by reason of the death of the saint (Mian Allah Dad Qureshi) who was a pious disciple (servant) of Hazrat Syed Makhdum Jahanian, Jahangasht 'of Uch.' Pilgrims from Muzaffargarh and nieghbouring districts visit the shrine for their spiritual treatment. The shrine is famous for its treatment of skin diseases, by using hot sand from 'Hanggin'. Prior to the notification the income of the shrine was utilized by Jat Metla family especially the Sajjadanashin.

6. *The details of ceremonies and rites.*—Urs is held at the shrine during Chet and Sawan. The ceremony of 'Jhand Khanan' and casting of Jins continues.

7. *Sanctioned strength of staff.*

Name of post.	Monthly pay including allowance.	Remark
1. Imam	30.00	
2. Caretaker	40.00	
3. Sweeper	20.00	

8. *Religious Purposes Committee.*—A committee has been formed by the Administrator of Auqaf, Central Zone, Lahore.

9. *Schemes in hand or to be implemented out of the income of the Waqf Property.*—The shrine is to be repaired. The fallen roof over the graves of "Saddat Bukhari" the descendants of Hazrat Makhdum Jahanian is to be completed and restored.

No. 4. Waqf Property named, shrine of Syed Abdul Wahab Bukhari Din Panah, in Muzaffargarh District:— Shrine of Abdul Wahab Bukhari Din Panah.

1. Location .. Daira Din Panah, Tehsil Kot Adu.

2. No. & date of Notification. 3(124) Auqaf-60, dated 23-7-1960.

3. Property taken over.

(a) Agricultural land .. 1/4 share of 219 kanals and 8 marlas in village Miran Tehsil Leiah.

(b) Number of Houses .. 2 quarters and one guest house within the limits of D. D. Panah Municipality.

(c) Number of shops .. Nil.

4. *Income and expenditure.*

Name of year.	Income.	Expenditure.	Credit balance on 31-12-1962.
1961-62 ..	3,012.91	1,728.72	3,788.52

5. *The purpose of Waqf according to the Waqf deed or usage:* Waqaf by usage.

6. *The details of ceremonies and rites:*—No specific date for urs was fixed by the ex-Sajjadanashins Majalis-i-Aza are performed at the shrine on 21st Ramzan, Muhrram and Chehlum. The ceremony of 'Jhand' and casting of Jins also continues.

7. *Sanctioned strength of staff:*—

(1) Imam, One, at Rs. 60 p.m.,

(2) Care taker, One, at Rs. 30 p.m.

(3) Sweeper, One, at Rs. 5 p.m.

(4) Care taker, II at Rs. 30 p.m.

8. *Religious Purposes Committee.*—A Committee has been formed by the Administrator of Auqaf, Central Zone, Lahore.

9. *Scheme in hand or to be implemented out of the income of the Waqf Property.*—Scholarship/stipend Scheme is to be administered out of the credit balance of the shrine.

Shrine of Hazarat Lal Isan Kahror.

No 5. Waqf Property named shrine of Hazrat Lal Isan Karor (Tehsil Leiah) in Muzaffargarh District.

1. Location .. Karor Municipality, Tehsil Leiah.

2. No. & date of Notification. 3(123) Auqaf-60, dated 23-7-60.

3. Property taken over:—

(*a*) Agricultural hand .. 14 kanals and 10 marlas in village Karor The Jandi of Leiah Tehsil.

(*b*) Number of houses .. One guest house.

(*v*) Number of shops .. 10

4. *Income and expenditure.*

Name of year.	Income.	Expenditure.	Credit balance on 31-12-1962.
1961-62 ..	4,173.49	..	10,554.40

5. *The purpose of waqf according to the waqf or usage.*—It is a waqaf by public usage.

6. *The details of ceremonies and rites.*—Annual Mela is held at the shrine. Illumination is made at the shrine on 15th 'Shaaban'.

7. *Sanctioned strength of staff.*—(1) Peshnamaz-cum-Khateeb for one Shia Mosque at Rs. 40 p.m. (2) Imam Masjid for Sunni Mosque at Rs. 40 p.m. (3) Care taker one at Rs. 30 p.m. (4) Bahishti one at Rs. 25 p.m. and (5) Sweeper one at Rs. 5 p.m.

8. *Religious Purposes Committee.*—A committee has been formed by the Administrator of Auqaf, Central Zone, Lahore.

9. *Schemes in hand or to be implemented out of the income of the Waqf Property.*—NIL.

5. *The Purpose of Waqaf according to the Waqaf, deed or* Shah, Tehsil Leiah, District Muzaffargarh. Shrine of Hazrat Pir Inayat Shah

1. Location. Leiah Tehsil, of Mzaffargarh District in Thal Kalan.

2. No. and date of Notification 3(510) Auqaf-60, dated 3-3-1961.

3. Property taken over :—

   (a) Agricultural land .. No cultivated land is attached with the shrine.

   (b) Number of houses .. Four kachha rooms ..

   (v) Number of shops .. Nil.

4. *Income and expenditure.*

Name of year.	Income.	Expenditure.	Credit balance on 31-12-1962
1961-62 ..	1,397.63	866.61	700.79

5. *The purpose of Waqf according to the Waqf deed or usage.*—It is waqf by usage. Prior to the notification the income of the shrine was utilized by the Sajjadanashin on performance of urs in the form of mela "The Camel fair".

6. *The details of ceremonies and rites.*—The devotees visit shrine in majority during *Chet and Katak*. The ceremony of 'Jhand', and casting of Jins still continues. A camel fair is held at the shrine every year. the income whereof is estimated te Rs. 20,000. According to the agreement between the ex-Mutawalli, and the District Council. 50% income realised on fair by the Council was used to be paid to the Mutawalli. The Auqaf Department has filed a claim for realization of the share against the District Council.

7. *Sanctioned strength of staff.*—One Khadim-cum-caretaker at Rs. 40 p.m.

8. *Religious purposes committee.*—A committee has been formed by the Administrator of Auqaf, Central Zone, Lahore.

9. *Schemes in hand or to be implemented out of the income of the Waqaf property.*—The credit balance or the income of the shrine is to be spent on administration of scholarship/stipend scheme.

The means of conveyance to reach the shrine from Fatehpur are quite unsatisfactory.

Pir Muhammad Rajan Sahib.

No. 7. Waqaf Property named Shrine of Hazrat Pir Muhammad Rajan Sahib, in Muzaffargarh District:—

1. Location .. Village Khokhar Isra, Tehsil Leiah.

2. No. and date of Notification 3(126)-Auqaf-60, dated 23-7-1960.

3. Property taken over:—

(a) Agricultural land .. No agricultural land is attached with the shrine, 5 acres land of abadi deh including graveyard has been taken over.

(b) Number of houses .. One big guest house, 4 small guest houses and 20 other ordinary houses situated in abadi deh.

(c) Number of shops .. Nil.

4. *Income and expenditure.*—

Name of year.	Income.	Expenditure.	Credit balance by 31st Dec. 1962.
1961-62 ..	5,614.59	4,062.49	7,073.72

5. *The purpose of Waqf according to Waqf deed or usage.*— It is a waqf usage. The saint is said to be one of the descendants of Makhdum Jahanian, Jhanagasht, Syed Bukhari of Uch who settled in this part of country during the reign of Humayun. He established Daras-i-Quran, Fiqah, and *Hadis*. The saint laid a foundation stone of Muslim Personal Law (Shariat) followed by Shia school of thought. The functions of 'Naurooza' Hajj, Muharram, Chelum, and Majalis-i-Aza, were started by the saint himself, which continue at present. According to the traditions offerings made by the devotees were spent by the saint on religious and charitable purposes.

6. *The details of ceremonies and rites.*

1. 21, 22 & 23rd March .. 'Naurooz'. It is urs of Pir Ali, Rajan where in eleven thousands people participate.

2. Zilhajj, 9th — 'Haj'. Majalis-i-Aza' are held approximeately ten thousands people participate.

3. Muharram 1 to 10th Muharram Commemoration of the martyrdom of Hazrat Imam Hussain at Karbala in Iraq.

4. Chehlum 'Chehlum'. Do.

7. *Sanctioned strength of staff.*—(1) One Peshnamaz (Imam) at Rs. 40 p.m. (2) Care taker Rs. 30 p.m. (3) Sweeper at Rs. 25 p.m. (4) Bahishtee at Rs. 25 p.m.

8. *Religious purposes committee.*—A committee has been formed by the Administrator of Auqaf, Central Zone, Lahore.

9. *Scheme in hand or to be implemented out of the income of Waqf property.*—The special repairs of the shrine, which was damaged during Leiah Earthquake 1954, is to be done in the near future.

8. Waqf Property named Agricultural land in Alipur Tehsil of Muzaffargarh District. Agricultural Land

1. Location .. Mauza Khanpur Neharkab (Alipur Tehsil).
2. No. & date of Notification. 3(28)-Auqaf-62 dated 26-11-1962.
3. Property taken over
   (*a*) Agricultural land .. 670 Kanals, 13 Marlas, Khata No. 2 of R.L. II.
   (*b*) Number of Houses..
   (*c*) Number of shops ...
4. *Income and expenditure.*

Name of year.	Income.	Exependiture.	Credit balance on 31-2-1962.
1961-62 ..	...	...	Most of the area is barren. A sum of Rs. 800/- is estimated as annual income. It is in the river bed.

5. The purpose of waqf according to the waqf deed or usage.

No deed or instrument is available. It is alleged that the allottee secured the area lieu of the area abandoned in India, which was attached to a Mosque.

No ceremony or religious function is performed. There is no religious purposes committee or sanctioned staff for its management.

9. *Schemes in hand or to be implemented out of the income of the waqf property.*—The income will form part of the Auqaf fund to be spent on religious educational and other valid purposes recognised by Islam.

10. *Any other important facts relating to the waqf.*—The demarcation and partition of joint Khatas is to be done through the Tehsil Agency, and thereafter the land will be given on lease to the highest bidder.

9. *Waqf property named Agricultural land situated in Alipur Tehsil, Muzaffargarh District.*—

Location	..	Village Langarwah, Tehsil Alipur.
No & date of Notification.		3(502)-Auqaf-60 date 20-3 1961.
Property taken over	..	
(*a*) Agricultural land	..	Agricultural land entered in Khata No. 18 of R. L. II measuring 104 Kanals and I Marla.
(*b*) Number of houses	..	Nil.
(*c*) Number of shops	..	Nil.

No details of income and expenditure are available. The purpose of Waqf is also not clear. Neither rites nor ceremonies are performed nor a religious purposes committee has been constituted.

10. *Schemes in hand or to be implemented out of the income of the waqf property.*—The major portion of the land is barran. It has recently been given on lease. A scheme for sinking of a well is under cossideration.

CHAPTER VIII
PLACES OF INTERESTS AND TOURIST RESORTS

General

There is nothing in the history to prove that this district ever played any important part in the political affairs of the country or contained any historical movement worth noting. From the rise of Diwan Sawan Mall as Governor, this district afforded open space for colonization of Hindu Money holders, who settled in big villages like Nawankot and Chaubara. They promoted certain trades, whose relic are still to be seen. The rise of Nahar Governments of Sitpur, Chaubara, Multan and D. G. Khan is associated with construction of forts and tombs. the relics of the former times are still found in Nawankot, Chaubara, Rangpur and Sitpur. After the advent of Britishers, irrigation works and bridges constructed over canals and rivers imparted beauty to the landscape. One such avenue is Chenab bridge in between Muzaffargarh and Multan. The date palm orchards and mango gardens provide interesting spot for scenic beauty. The meandering rivers with their creeks on both sides of the District, the Suleman range on the one hand and Thal dunes on the other in the background of Kot Adu at the time of sinking sun add charm to the place. The following are the important places and tourists resorts in the Muzaffargarh District.

Places of interest and tourists resorts-Muzaffargarh.

Muzaffargarh the present headquarters of the District developed from small place known as Mussan Hatti. Nawab Muzaffar Khan of Multan built a fort, probably one of the resting place on the other side of the river. The old town is situated within the fort which now lies in a dilapidated condition. Its walls have fallen at many places where new buildings are being constructed. The plan of the town within the fort is symetrical, consisting of a chowk in centre with the four bazars meeting therein. The town has now largely been extended beyond the old walls. The residential houses are situated behind the shops abutting the main bazars of the town. At the crossing of the L.M.Q. road leading to the Railway Station, a District Council sarai, and a cinema hall lie on the north-eastern side, while on the southern side, lies the building of the Post Offices.

The District Courts are situated on the Multan D. G. Khan road. The headquarters of the Superintendent of Post Offices, Assistant Registrar Co-operative Societies, Extra Assistant Director of Agriculture, Divisional Forest Officer, Excise and Taxation Officer, Superintendent of Police, the Executive Engineer, Muzaffargarh Canals, etc., are located at Muzaffargarh. Besides, the offices of the Sub-Divisional Officer, P.W.D. (B. and R), S.D.O.

P.W.D. (Construction) District Health Officer and Assistant Director of Animal Husbandry, are situated at Muzaffargarh. Drinking water is supplied to the town from the water supply reservoir, recently constructed by the P.W.D.—Public Health Department and is being maintained by the Municipal Committee. There are three banks operating in the Town namely Central Co-operative Bank, National Bank of Pakistan and Agricultural Development Bank. The offices of the Superintendent of Post Offices the Excise and Taxation Officer, Soldier Board, the Veterinary Hospital, the District Council lie on the road leading from railway station to the District Courts. The D.C's and the Civil Surgeon's residence, the Police Lines, Government High School, the office of the Executive Engineer, Muzaffargarh Canals and his residence the Canal Rest House and the District Headquarters Hospital are situated on the road leading from the District Courts to Alipur, while the Superintendent of Police residence, the Treasury the Sadar Police Station, the Civil Rest House and the Tehsil Offices, are on the main road leading to Dera Ghazi Khan. A short branch road takes off from the Dera Ghazi Khan road along the western edge of the district courts to the office of the Assistant Registrar Co-operative Societies and the sub-jail.

The Victoria Memorial Hall which was built in 1909 by public subscription is under the charge of the District Council and is being utilized by the local club. The building has spacious grounds with a small orchard which are used for tennis, etc., by the Muzaffargarh Club. Arabian dates have been planted in the garden attached to the memorial hall.

In the east of the town at a distance of about one mile, is situated the Taliri Garden still the best date palm orchard in the country which also provides a beautiful avenue for picnic resort for the public on festivals and other occasions. This garden is famous for its mangoes and Arabian dates plantation. Its charge has now been taken over by the Government, through Agricultural Department. The Municipal office has been reconstructed in a central place on the western side of Multani gate. The land around the Municipal Water Works has been converted into a public park.

Rangpur Rangpur was once a large village at the extreme north east of the District near the Jhang district. It was called Rangpur Khairianwala after the Khaira tribe which once ruled in this town. It is a sub Tehsil of Muzaffargarh Tehsil, with a Police Station, a Penal Rest House, a District Council Dispensary, a District Council Veterinary Hospital, a high school for boys and a girl school and a sub tehsil. It was once the largest village and a trading centre on Multan-Kashmore road. The high floods in the river

Chenab has now washed away the entire Rangpur town with the exception of the Canal Rest House and a portion of the high school. The lands of this area were once productive but have now become barren due to river action. The place is well known for the famous story of Hir and Ranjha.

The inhabitants of this town have since shifted to new Rangpur Town site where plots of 5 to 10 marlas were allotted to them under orders of the Deputy Commissioner from the colony land in village Daira Habbat lying on the north-west corner of the main crossing of the Muzaffargarh-Khushab and Rangpur-Daira Din Panah road.

It is a farily large village, situated at a distance of about 11 miles west of Khangarh. It is a business centre where from buttered oil (ghee) mangoes, dates and taddis are exported. **Kinjhar**

"Alipur Town, the headquarter of the Sub Division bearing the same name was founded by Ali Khan, a member of the ruling Nahar family who ruled the southern part of the tehsil and whose seat of Government was Sitpur, a town which is at a distance of about 10 miles from Alipur. The Nahars ruled Sitpur since the year 1455 A.D. When Bahlol Khan Lodhi became king of Delhi who granted to his relation, Islam Khan, the country lying between the Indus and the Suleman range, some of the line drawn from Harand (now in Dera Ghazi Khan District) to Uch, (now in Bahawalpur district). The descendants of Islam Khan assumed the title of Nahar (wolve). His grandsons, Qasim Khan, Salam Khan and Taher Khan quarrelled and divided the country among themselves. The southern part of the Tehsil whose chief town then was Sitpur, fell to the lot of Tahir Khan. He established his rule there and died after some time. Ever-since the establishment of the Nahar family to the present day 27 generations have come and gone. **Alipur.**

In 1484 A.D. Mirani Baluchis of Dera Ghazi Khan district expelled the Nahars from the south of the Dera Ghazi Khan District and pressed the Sitpur Nahars very hard. Sheikh Raju, a Makhdum of Sitpur, who was a counsellor of the Nahar ruler, exploited the situation and seized the country for himself. He could not, however, entirely expel the Nahars, until he was himself overthrown by the Nawab of Bahawalpur and parts of Sitpur country were still in possession of the Nahars.

Alipur is situated at a distance of 51 miles southwards from Muzaffargarh, the district headquarters town. The Lahore Karachi Highway passes at a distance of about one mile from this

town, on its eastern side. It is an agricultural centre in a well cultivated tract, and is at a distance of 6 miles from river Chenal and 15 miles from Indus. The situation of the town is unfavourable being affected by the floods of both the rivers.

The population of the town has increased only by 436 during the last decade. It was 5,933 in 1951 and is now 6,369 according to 1961 Census.

There are Government High Schools for boys and girls. Its importance is mainly due to the headquarters of Sub Divisional Officer, Tehsildar and Civil Judge are located here. A Civil Hospital manned by male and female Medical Officers and a Veterinary Hospital are also located here. At present the town is without any electricity which is expected to be available by the middle of 1963. The construction of a Sub Station has already been completed. The local affairs are managed by a Town Committee. Water-works arrangements exist but this facility is not being properly availed of by the general public for the lack of proper drainage arrangements. This town is famous for mangoes, dates pomegranates which are exported to other districts in large quantity."

Shehr Sultan This is an important village in the Alipur Tehsil, situated on the main road leading from Muzaffargarh to Alipur at a distance of 37 miles from the former and 14 miles from later. It is about two miles away from the Chenab river. This village is famous for the shrine of Sultan Ahmad Khattal a revered saint and a big fair is held here annually.

Sitpur It is an important village of antiquity in the Alipur Tehsil and is situated on the main road of the District, 11 miles south of Alipur. It is always open to the violent actions of the Chenab floods when communication is cut every year in the summer season for some time. In the winter months the ground of flooded parts is damp. Houses are built on irregular eminences of accumulated debris, exeers into two parts (Khanani and Sheikhan) and built irregularly and has a dilapidated appearance. The building of antiquarian interest are mosque and tombs of Tahir

Khan Nahar at the west end of the Bazar, both being protected monuments. There is also the shrine of Makhdum of Sitpur. There is a thana, a high school, two girls schools, a District Council Dispensary, a police Rest House.

"Kot Adu town was founded about 1,550 A.D. by sons of Ghazi Khan. It is situated at a distance of 35 miles by rail and 41 miles by road from Muzaffargarh, the district headquarter town. The all weather pacca road leading to Dera Ghazi Khan passes through this town and over the newly constructed Taunsa Project Headworks, situated at a distance of 10 miles from the town. Kot Adu.

The population of this town has increased about 25 per cent. as compared to the population in the year 1951. It was 10,507 in the year 1951 and 13,107 in 1961.

The location of the Taunsa Project Headworks and development of Thal area of this Tehsil are responsible for this increase in the population. There is a Town Committee. The offices of the Executive Engineer and Sub Divisional Officer, Irrigation are also located in this town. There are no water works or electricity arrangements. It is, however, expected that electricity would be made available from Multan Sui-Gas Thermal Station by the middle of 1963. The town has Government High Schools for boys and girls. It is now developing as an exporting centre for munj, mats and ban (string) manufactured in a large quantity in this Tehsil. Lot of charcoal and fuel wood mostly brought from Dera Ghazi Khan district is exported from Kot Adu Railway Station. This town has a Dispensary, a Veterinary Hospital, post Office and a Police Station. A Civil Rest House is also located in this town."

This is an important village in the Kot Adu Tehsil. It was once the headquarters of the Tehsil which was later on shifted to Kot Adu on account of water-logging. The Muzaffargarh-Mianwali road runs along its western side. Sanawan.

Leiah

"Leiah is the headquarter of the Sub Division of that name. Its exact location is 36°58 north latitude and 70.58' longitude and is about 500 feet above the sea level. The town was founded by the sons of Ghazi Khan about 1550 A.D. After the annexation of Leiah in the year 1848 by the British Government Leiah town was made the headquarter of the newly constituted District which had Mianwali, Bhakkar, Kot Adu and Leiah as its four Tehsil. The headquarter of the Commissioner was also located in this town till 1861 when it was transferred to Dera Ismail Khan. The District headquarter was later on shifted to Mianwali in the year 1901 and this town was left the headquarter of Leiah Tehsil. On 1st April, 1909 Leiah Tehsil was transferred to Muzaffargarh District and became the Sub Divisional Headquarter.

It is situated at a distance of 70 miles by rail and 80 miles by pacca road from Muzaffargarh, the district headquarter town. This town has now direct road link with Muzaffargarh Jhang and Mianwali.

The population of the town was 14,914 in the year 1951 which has now increased to 19,608 in 1961. This decennial increase of about 31' per cent is the result of the development that is taking place in the Thal area of this Tehsil.

The Sub Divisional Officer is the head of the local administration. He is also the Chairman of the local Municipal Committee and the Tehsil Council. The court of a Civil Judge is also located here. The Extra Assistant Colonization Officer, Thal Project Colony, Divisional Forest Officer, Leiah; Executive Engineer, Irrigation; Sub Divisional Officer, Irrigation; Sub Divisional Officer, Building and Roads have also their headquarters in this town.

The town is electrified but there is no Waterworks. There is a Government Intermediate College for boys, two High Schools for boys and one for girls.

The importance of this town is fast increasing. The recently set up Leiah Sugar Mills and the Thal Development Authority

Workshop are greatly assisting the economy of this newly developed area. Several restaurants have been set up in this town which cater to the need of the colonists who visit this town in large numbers. There is a Government Hospital manned by male and female Medical Officers in addition to the Veterinary Hospital, Police Station and a small Telephone Exchange. Prior to Independence this town was famous for the manufacture of Khes and Ivory goods. These trades are now dwindling. There are four Rest Houses under the management of Irrigation, Civil, Sugar Mills and Thal Development Authority Departments.

An Open air Cinema exists here for the amusement of the public."

Tourists Reso . Panjnad.

(a) *Panjnad*.—The Panjnad Headworks, at the confluence of rivers Chenab and Sutlej, is situated about 60 miles from Bahawalpur City. It is an interesting sight for the tourists. It feeds various canals including the Abbasia and Panjand canals, which are the major source of irrigation of the Bahawalpur Division.

Taunsa Barrage.

(b) Taunsa Barrage across the river Indus 12 miles down stream of Taunsa on a line along latitude 30°32′ marks a new mile stone in the agricultural economy of West Pakistan. The width of this Barrage is 4,346 feet between abutments consisting of 64 spans of 60 feet each and one span of 22 feet and other accessories. The highest of the weir pier is 36 feet. The maximum height of the barrage is 415 feet at weir portion that is from down stream bed level upto the road level. The intensity of flow per foot run works to 228 cusecs. The down-stream floor of the stream is worked out for the worst conditions in winter when all the water in the river is to be diverted to the irrigation channel and link channel with no water down stream. In order to effect economy the road and railway bridges are combined with the barrage by extending the piers suitably. This also avoids construction of separate well-foundations for these bridges.

The headworks with beautiful lawns and buildings provides a vanue to hitch hickers and sight seers.

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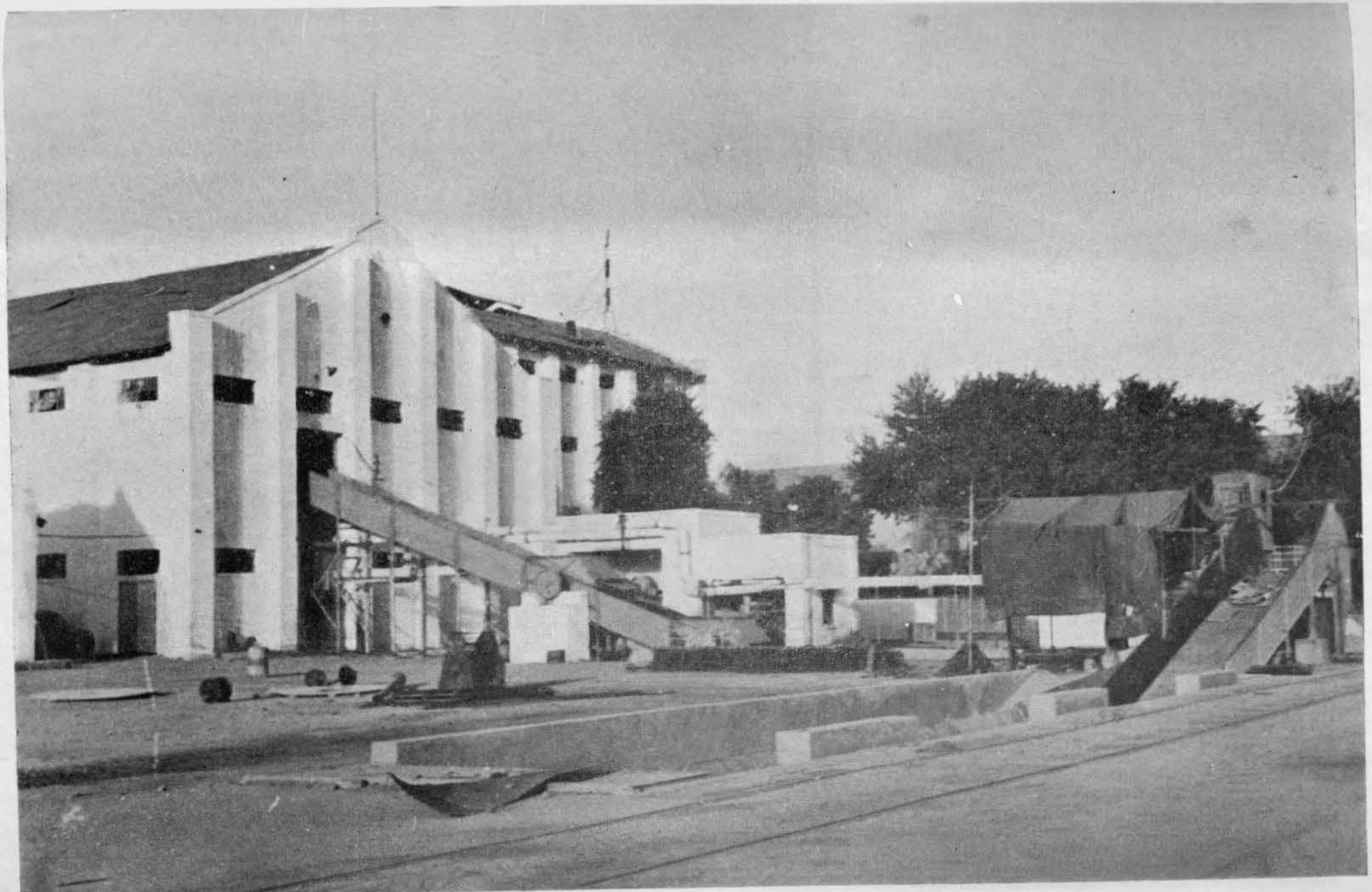
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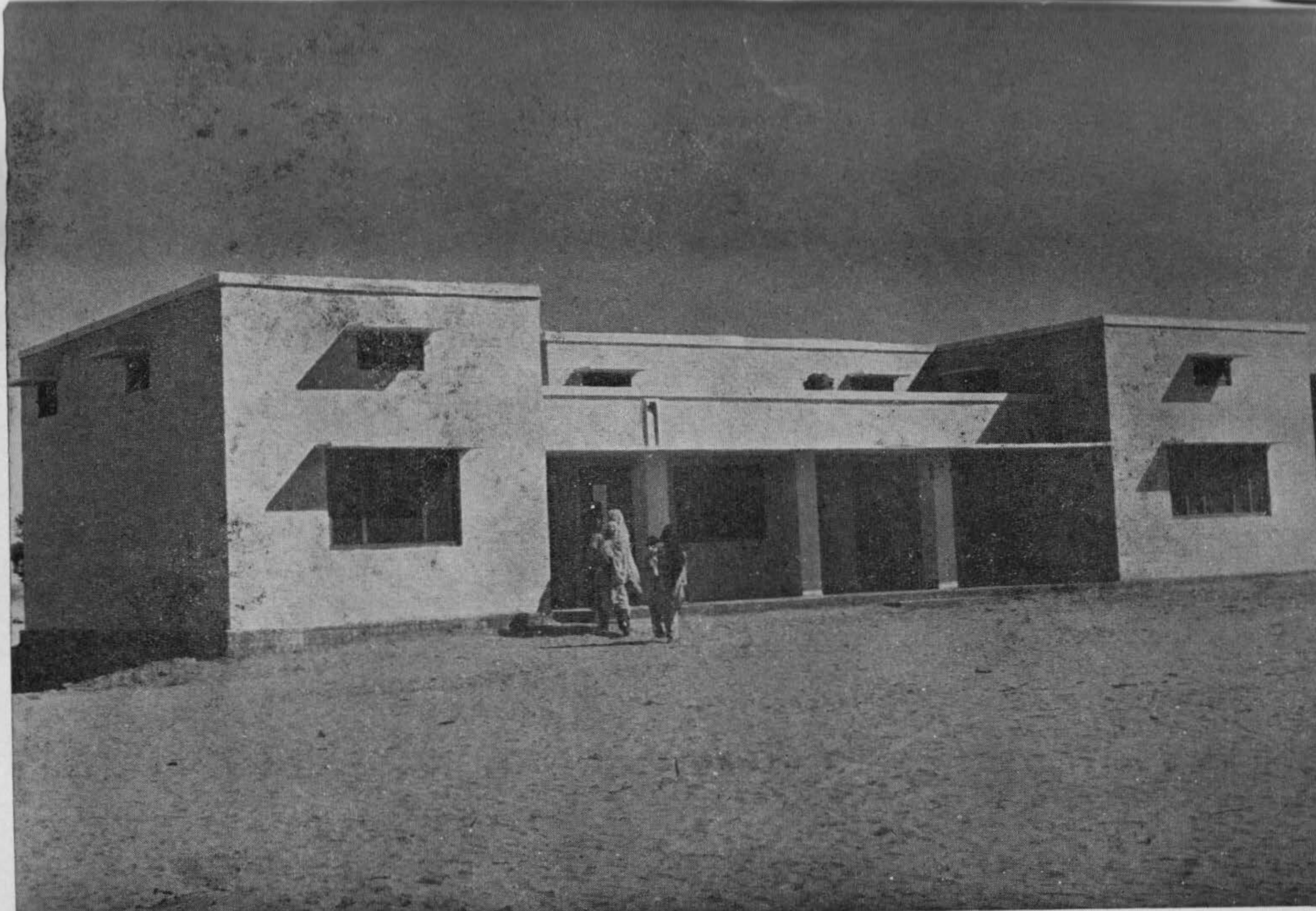
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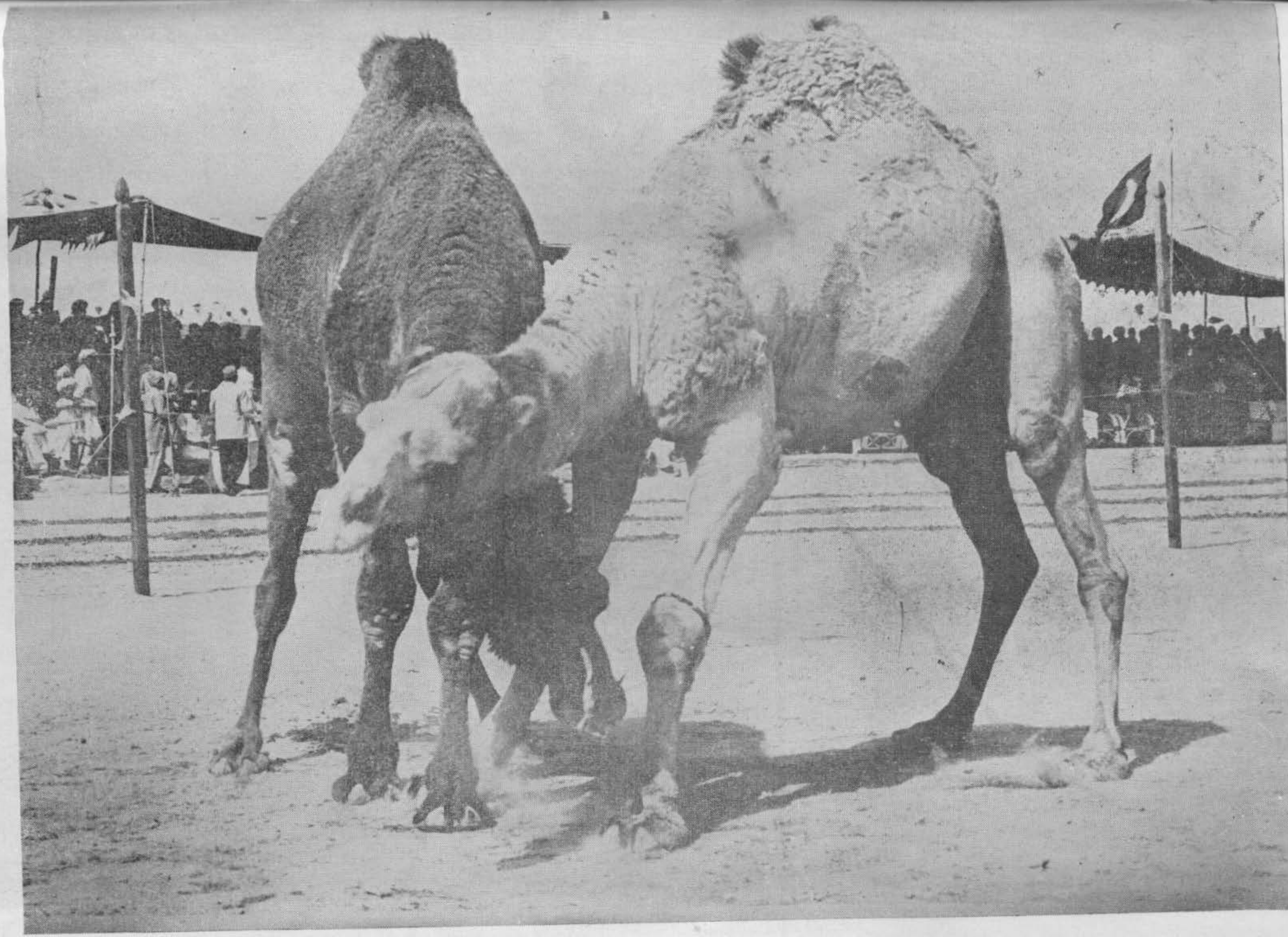
Sugar Mills—Leiah.



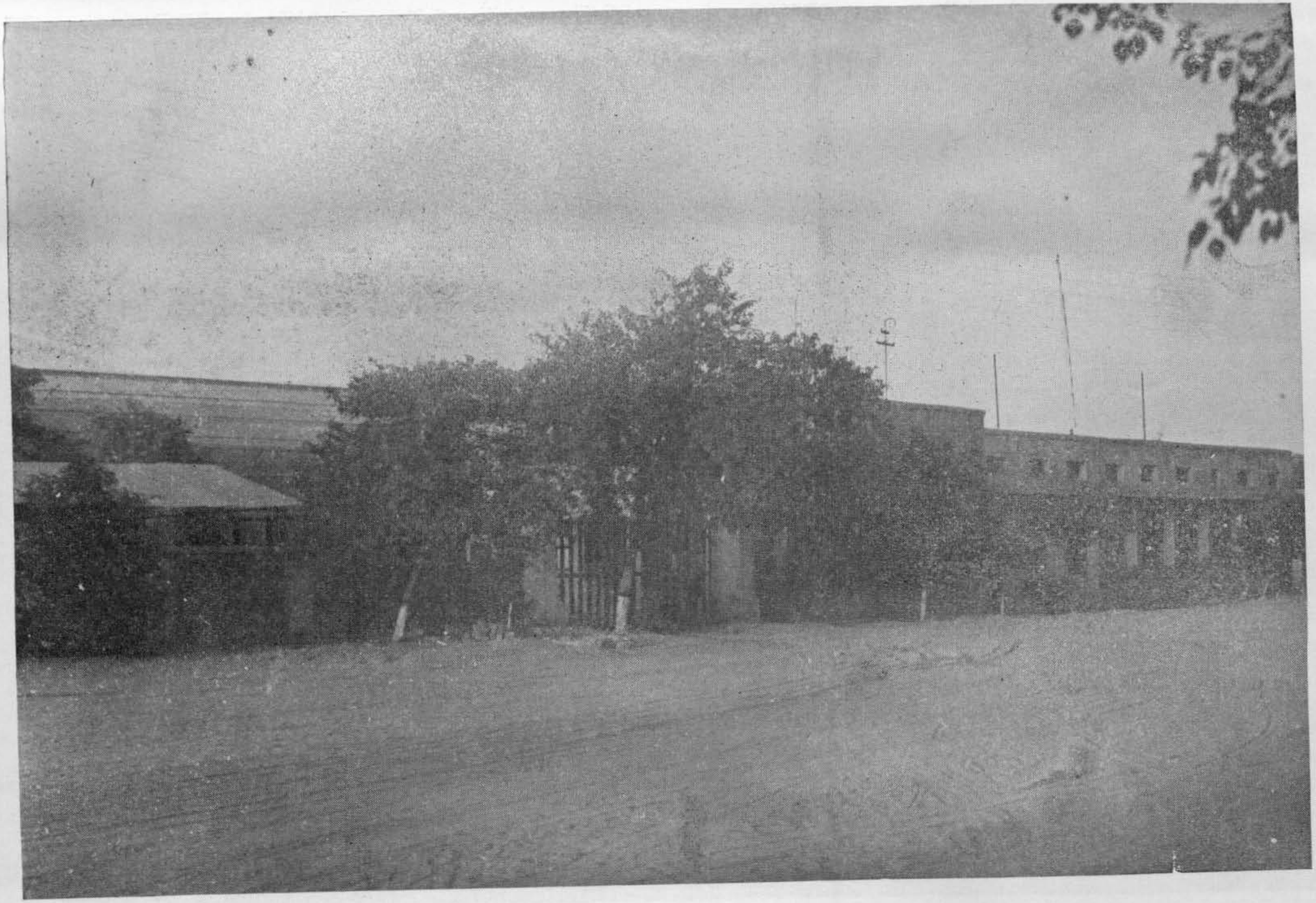
"Rural Dispensary" Sarishta Thal, in Leiah Tehsil, Constructed by Union Council, under the Ph—480 Programme.



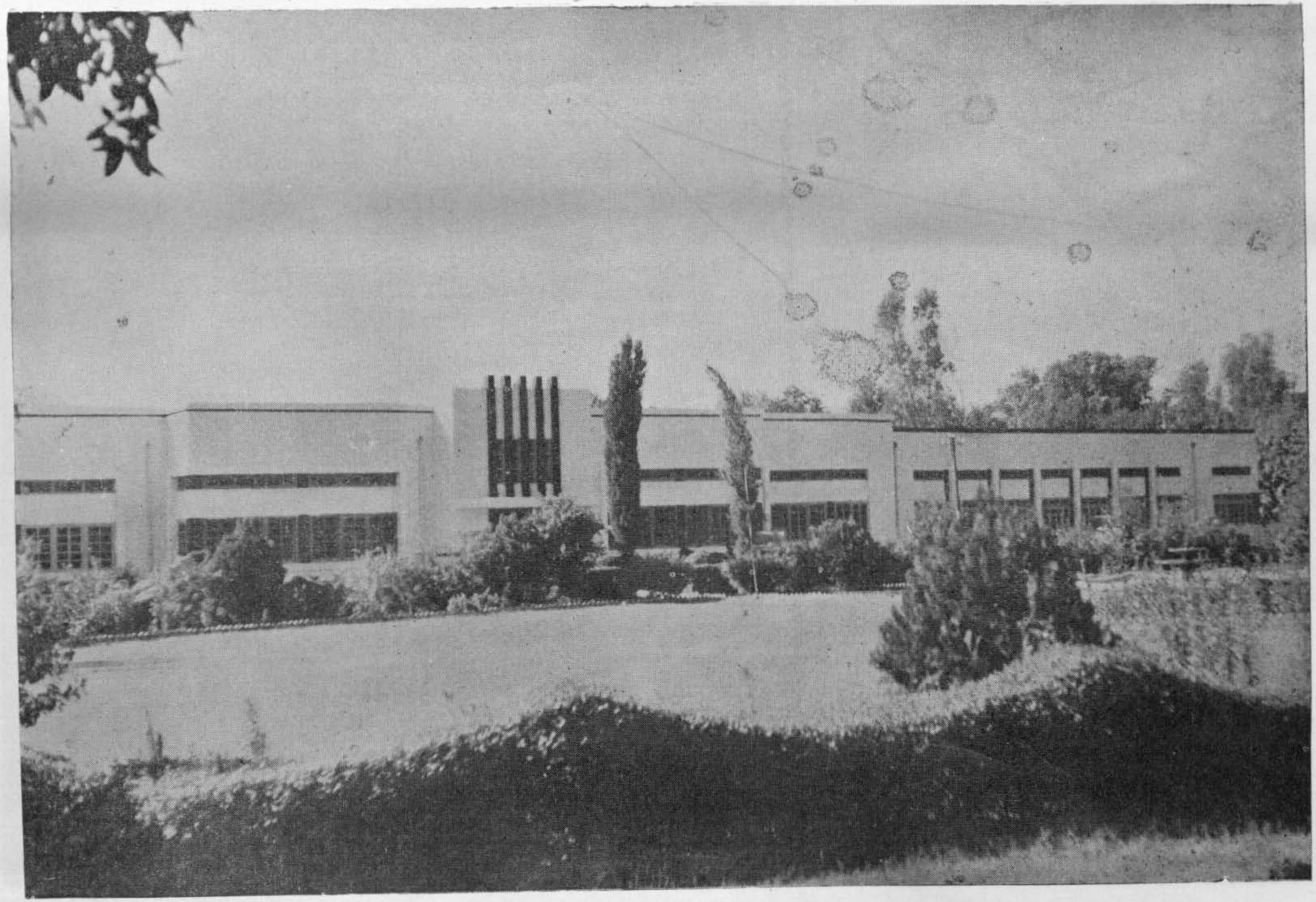
A Chestri of " Basra Dates" in Taliri Garden at Muzaffargarh.



Camel Fight at "Talia Nur Shah Fair" in Kot Adu Tehsil, Muzaffargarh District.



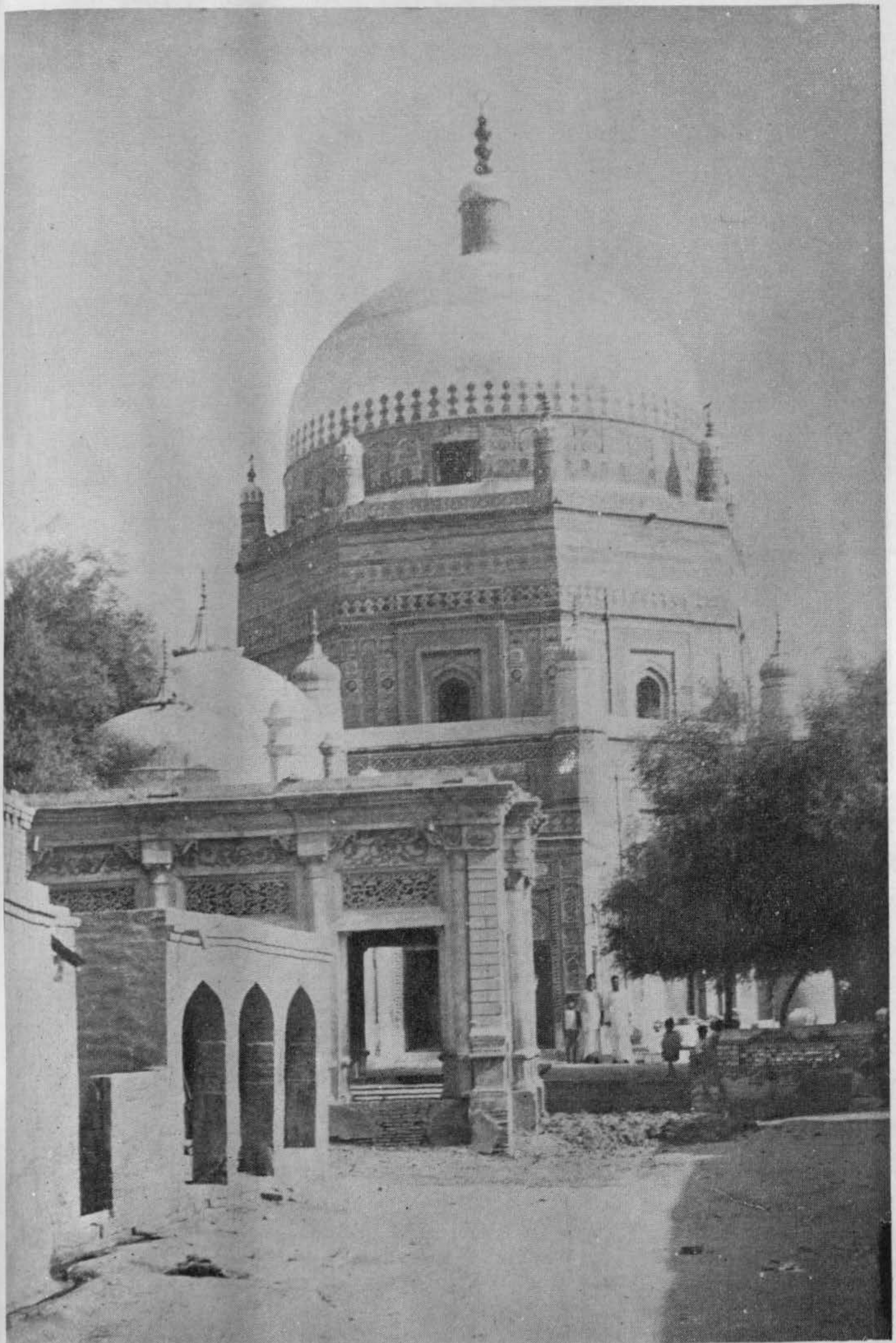
T. D. A. Mechanical Workshop—Leiah, Muzaffargarh District.



District Headquarters Hospital at Muzaffargarh.



Camel Dance at "Snawan" in Kot Adu Tehsil of Muzaffargarh District



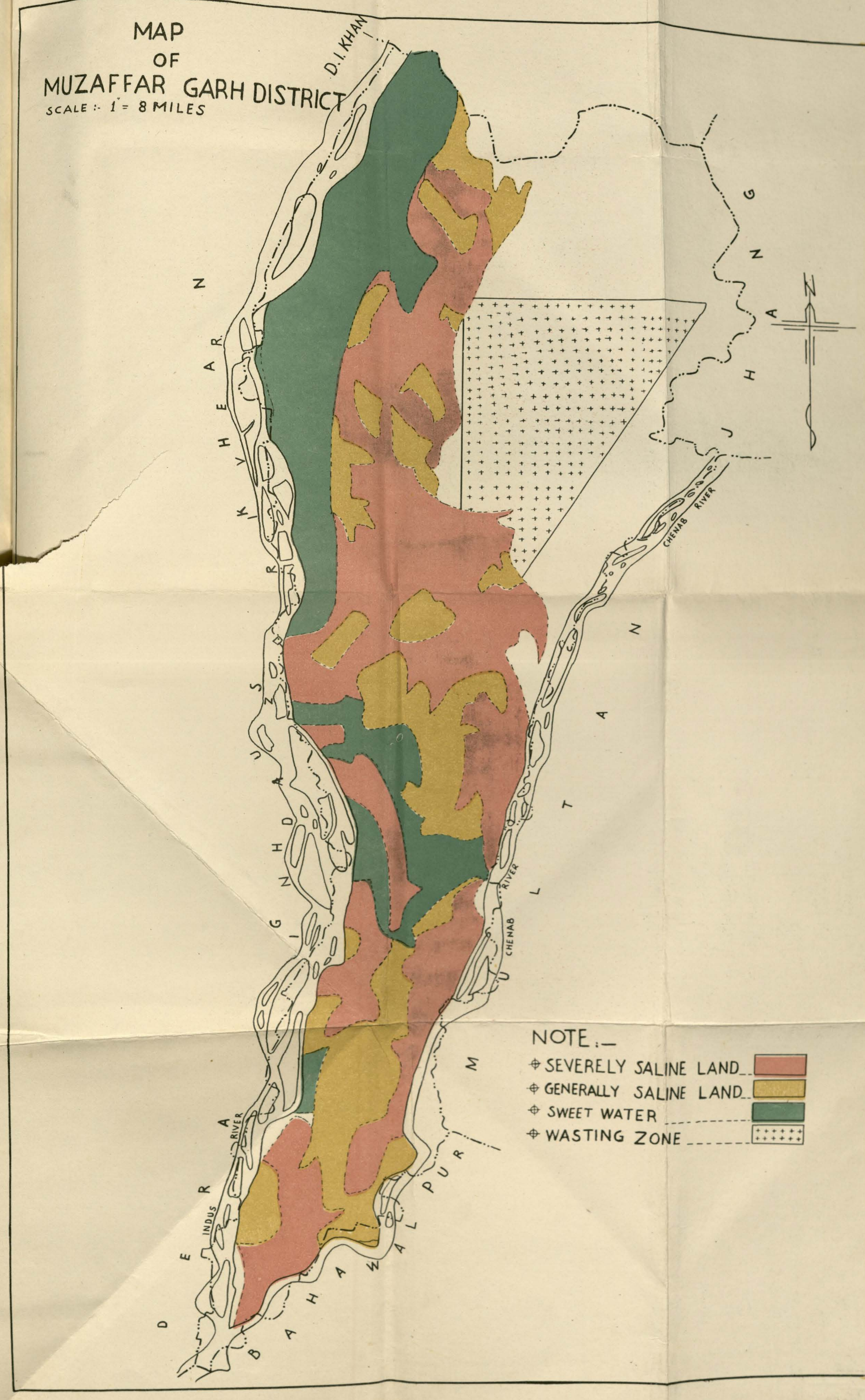
Shrine at "Hazrat Din Panah" at Daira Din Panah Town in Kot Adu Tehsil.

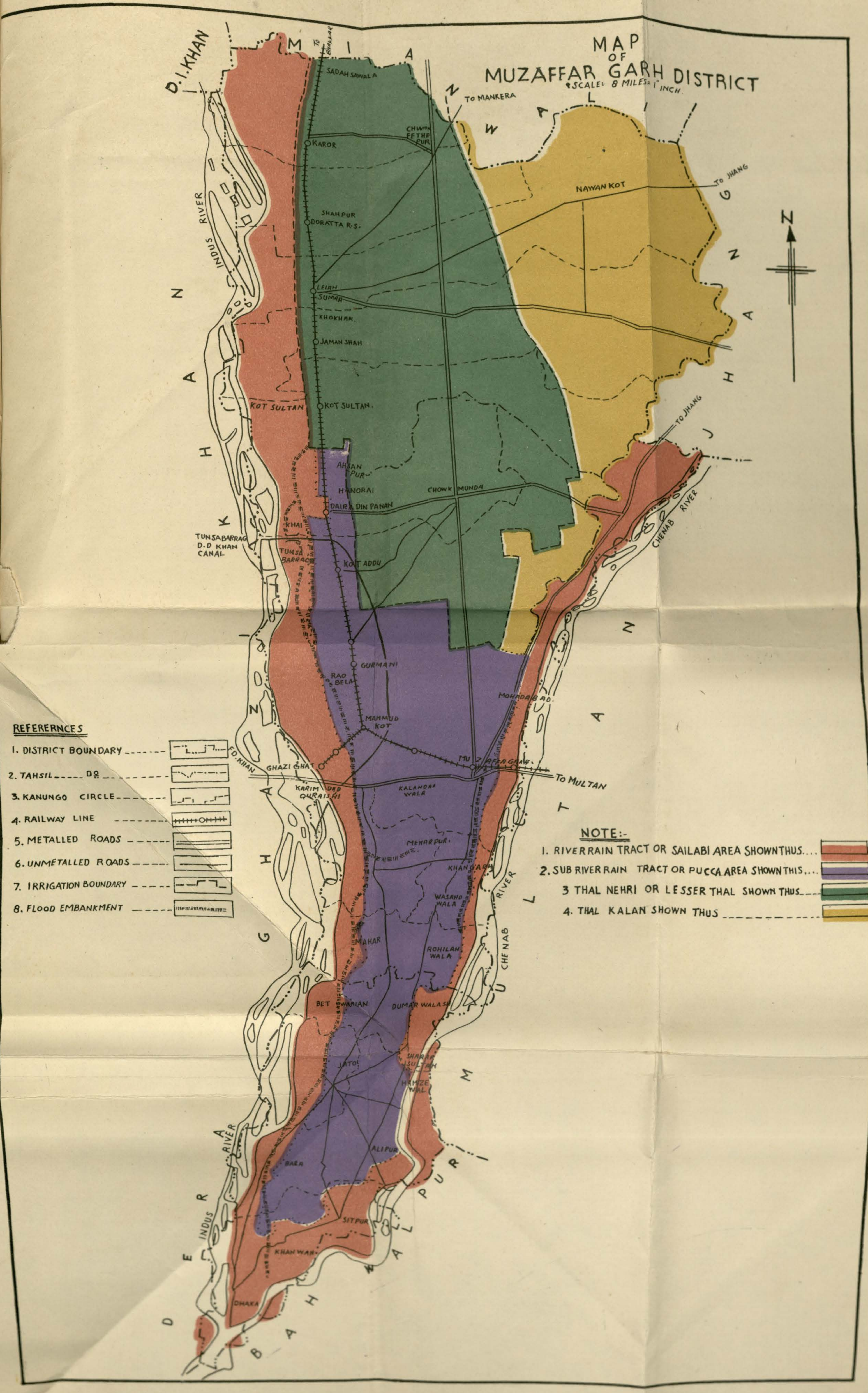


A typical Marriage Procession "Jang" District Muzaffargarh.



Remains of an old Fort at Shahgarh in Muzaffargarh Tehsil.


MAP
OF
MUZAFFAR GARH DISTRICT
SCALE :- 1" = 8 MILES
D.I. KHAN
N
JHANG
CHENAB RIVER
NAWAB KHEAR
MUZAFFAR GARH
MULTAN
INDUS RIVER
DERA GHAZI KHAN
BAHAWALPUR
NOTE :—
SEVERELY SALINE LAND
GENERALLY SALINE LAND
SWEET WATER
WASTING ZONE



MAP OF MUZAFFAR GARH DISTRICT
SCALE: 8 MILES = 1" INCH
REFERERNCES
1. DISTRICT BOUNDARY
2. TAHSIL DO
3. KANUNGO CIRCLE
4. RAILWAY LINE
5. METALLED ROADS
6. UNMETALLED ROADS
7. IRRIGATION BOUNDARY
8. FLOOD EMBANKMENT
NOTE:-
1. RIVERRAIN TRACT OR SAILABI AREA SHOWN THUS....
2. SUB RIVERRAIN TRACT OR PUCCA AREA SHOWN THIS....
3 THAL NEHRI OR LESSER THAL SHOWN THUS
4. THAL KALAN SHOWN THUS
D.I. KHAN
MIANWALI
JHANG
MULTAN
BAHAWALPUR
DERA GHAZI KHAN
INDUS RIVER
CHENAB RIVER
TO MANKERA
TO JHANG
TO MULTAN
N
SADAH SAWALA
KAROR
NAWAN KOT
SHAHPUR
DORATTA R.S.
LEIAH
SUMAR
KHOKHAR
JAMAN SHAH
KOT SULTAN
AHSAN PUR
HANORAI
DAIRA DIN PANAN
CHOWK MUNDA
TUNSA BARRAGE
D.D KHAN CANAL
KOT ADDU
GURMANI
RAO BELA
MAHMUD KOT
MOHRA BAD
GHAZI GHAT
KARIM DAD QURAISHI
MUZAFFARGARH
KALANDAR WALA
MEHARPUR
KHANGARH
WASAND WALA
ROHILAN WALA
MAHAR
BET WARIAN
DUMAR WALA
SHAHR SULTAN
JATOI
HAMZE WALI
ALIPUR
SITPUR
KHAN WAH
DHAKA